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London Fares

THE volume of protest continues to grow against the increases in British Railways fares in the London Area and in London Transport bus and Underground fares proposed in the Passenger Charges Scheme, 1953. By last Monday, the closing date for lodging objections with the Transport Tribunal, objectors included the London County Council, united in its opposition to any step which will increase the fares burden on the Londoner; and the Middlesex County Council representing a population two-thirds as large and probably more affected by any rise in fares. Strong opposition is being offered in Parliament. Some Conservative and Liberal Members have tabled a motion against the increases which also calls for an inquiry into the operation of passenger transport in London. A Labour amendment seeks to saddle the present Government with the responsibility for higher transport charges—an attempt to make party capital out of a non-party issue. Such a side issue will probably not deflect Parliament from its immediate purpose of doing everything possible to avoid a fares increase which will bear heavily on a large part of the population. The facts as to London fares were stated clearly in the Commons last week by Mr. Alan Lennox-Boyd, Minister of Transport. Since 1945, London Transport rail and road fares have been increased four and British

Railways fares three times. These successive rises, to whatever extent justified on immediate financial grounds, are something of an irritant to public opinion. For that reason, although London Area passenger fares, both main-line and London Transport, are now only 83 per cent above pre-war, with the general level of costs 130 per cent up, the proposed increases have aroused the most bitter opposition. British Railways, moreover, will probably incur thereby a considerable degree of odium, which is likely to be increased by the relatively small rise in season ticket rates proposed in the provinces. This is the more unjustified because, unlike London Transport, on which a deficit of £3 million is expected for this year, they are paying their way. Had the railways not had this and other charges schemes imposed on them by the British Transport Commission, it is unlikely that they would have elected to take the unpopular step of raising their fares at this unpropitious moment.

Brigadier James Storar

THE late Brigadier James Storar, whose death is reported on another page, brought to his duties as Chairman of the Vulcan Foundry Limited and Robert Stephenson & Hawthorns Limited, a wide experience of overseas railways conditions and requirements derived from his service as an Officer and Director of British-owned undertakings abroad. His training was in locomotive engineering and he had spent a period studying American practice since the recent war. After service in the 1914-18 war, he was in succession District Locomotive Superintendent on the Rhodesia Railways and then Chief Mechanical Engineer of the Nyasaland and Trans-Zambesia Railways, and in this latter appointment, during the absence of the General Manager, acted in his stead. Brigadier Storar was Managing Director of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. and its subsidiaries; a Director of the Great Western of Brazil Railway Co. Ltd., the Dorada Railway Co. Ltd., La Guira & Caracas Railway Co. Ltd., Nyasaland Railways Limited, the Central Africa Railway Co. Ltd., and the Trans-Zambesia Railway Co. Ltd. His service to the British locomotive engineering industry may be measured by the prestige enjoyed all over the world by the two great locomotive building firms of which in recent years he was Chairman.

New Ulster Transport Authority Chairman

MR. GEORGE B. HOWDEN, who since mid-1950 has been General Manager both of the Great Northern Railway (Ireland) and Coras Iompair Eireann, has been appointed Chairman of the Ulster Transport Authority in succession to Mr. J. Sidney Rogers. Mr. Howden's previous experience has given him an understanding of transport problems in Northern and Southern Ireland which it would be hard to parallel. This first-hand familiarity with the day-to-day operation of road and rail traffic in the country will be of the greatest value in Mr. Howden's new appointment, enabling the whole field of activity and its closely interconnected problems to be seen with a perspective that will facilitate wise decisions. Mr. Howden throughout his career has shown himself a believer in the value of modern rolling stock and motive power in developing the traffic of the railways for which he is responsible. There is evidence of his versatility in the fact that for six years he filled the dual position of Civil and Mechanical Engineer on the Great Northern Railway, and in that period undertook the reconstruction of the Boyne viaduct at Drogheda, which was carried out without interruption of traffic.

British Railways and the Coal Industry

IN a paper read on January 28 to the Railway Students' Association in London, Mr. W. L. Kelly, Assistant Director of Marketing (Transport), National Coal Board, expressed some anxiety as to the effect on the present close co-operation between British Railways and the coal industry, of the railway reorganisation scheme to be sub-

mitted under the Transport Bill of 1952. In his survey of how the railways handle coal traffic, Mr. Kelly quoted several examples of how difficult situations have been met by the organisation at Railway Executive headquarters. He also gratefully acknowledged many instances of ready co-operation and resourcefulness by individual Regions, some of which are quoted elsewhere this week. In saying that the National Coal Board looked forward with some anxiety to the forthcoming scheme of reorganisation, however, Mr. Kelly seems to have misinterpreted the form and extent of decentralisation advocated by the Minister of Transport. Although freight rolling stock control has not been specifically mentioned in the debates so far as an activity that must remain centralised, there is little doubt that it will be so regarded when the details of the scheme are worked out. A rearrangement of railway domestic affairs need not deprive any of their nationalised customers of what Mr. Kelly described as the ability "to be able to look to a comparable organisation in the transport field for the discussion of their common problems."

Overseas Railway Traffics

INCREASES over the corresponding 1951 figures are shown in Canadian Pacific earnings and expenses for December last. Gross earnings for December were £13,185,000, compared with £11,865,000 for December, 1951, and working expenses £11,729,000, against £10,840,000, leaving net receipts of £1,456,000, an increase of £431,000 over the 1951 figure. Aggregate gross earnings for the year 1952 were £152,603,000 and net earnings £10,274,000, showing rises of £9,632,000 and £1,336,000 respectively over 1951. The corresponding figures for the Canadian National Railways are not yet available. Working expenses were much increased by wage awards during the year and by rises in the cost of materials mostly of some 6-9 per cent. How car traffics rose comparably with those of the C.P.R., and sufficiently to balance expenditure, remains to be seen. Whatever the final result for 1952, the financial picture will differ from that of previous years because of the Canadian National Railways Capital Revision Act of 1952; this altered the company's capital structure, so that fixed interest charges now bear a reasonable relationship to earning power.

Royal Engineers (Tn) A.E.R.

IN a few months the Longmoor Transportation Centre of the Royal Engineers will celebrate its first half century. Since 1903 it has been the home of railway troops in this country and personnel which have passed through the centre have played outstanding parts in many theatres of war. Field Marshal Sir William Slim, Chief of the Imperial General Staff, who is Honorary Colonel of the R.E. (Tn) A.E.R., presided at the officers' annual dinner on Friday last at the Criterion Restaurant, London. It was attended by the Minister of Transport, representatives of the War Office and the Australian Army Staff, as well as the British Transport Commission, British Railways, London Transport Executive, and ports and inland waterways. Field Marshal Slim, who was congratulated by Colonel R. Thompson on behalf of the officers of the corps on his appointment as Governor General of Australia, stressed the dependence of armies on transport and recalled the time he had spent as Deputy Chairman of the Railway Executive. The Minister of Transport made brief reference to the Transport Bill now before Parliament.

Permanent Way Institution Winter Meeting

REPRESENTATIVES from all the 75 sections in Great Britain, and from Malaya and Holland, were present at the sixty-ninth winter general meeting of the Permanent Way Institution, held on January 31. Mr. M. G. R. Smith, Civil Engineer, Western Region, British Railways, was elected President for the ensuing year. The reports received showed that the membership increased by 470 during 1952, and that the total stands at about 5,000. The financial position remains sound, although rising costs call for

strict economy. It is gratifying to note that there is a flourishing section on the Rhodesia Railways, of which Lt.-Colonel H. B. Everard, last year's President, is now General Manager. The meeting extended a warm welcome to Mr. F. Q. den Hollander, President, Netherlands Railways, who gave an address on "The Organisation and Recent Developments on the Netherlands Railways." A conversation, attended by some 400 members and guests, was held during the evening at the Railway Executive Headquarters, in Marylebone Road. The meeting and the conversation are reported in greater detail elsewhere in this issue.

Storm and Flood

AFTER the loss at the beginning of the week-end of the British Railways vessel *Princess Victoria* in the Irish Sea, the country was faced within hours by the spectacle of flood havoc extending from Kent to Lincolnshire. Of the 172 persons, passengers and crew, on board the *Princess Victoria*, 44 were rescued. The Minister of Transport announced on Monday that preliminary inquiries into the loss of the ship were already in hand and that a formal inquiry would be held in public. The floods along the eastern coasts caused widespread interruption on railway traffic, as reported elsewhere. Canvey Island, Essex, was the area most seriously affected, and services were suspended on the former L.T. & S. line between Benfleet and Leigh-on-Sea. Taking advantage of the electrification from Fenchurch Street to Stratford, not yet in regular use, passengers for Southend were conveyed by special electric trains to Shenfield and from there forward by steam services, so that much Southend traffic could be handled at its usual terminus. Other special measures have included road transport between Wrabness and Harwich for passengers by Eastern Region Continental services. The Southern Region was seriously affected in North-East Kent, and the flooding of Deptford power station necessitated reduction of electric train services, and suspension of carriage heating, outside the flooded areas.

Inquiry into Condition of Stations

IT was announced on January 30 that the six Chief Regional Officers of British Railways, under the leadership of General Sir Daril Watson, Member of the Railway Executive, have put in hand an inquiry into the condition of railway stations. This action has followed press criticism of several large stations in the North of England, which evoked numbers of letters from correspondents giving examples of similar deficiencies elsewhere. Mr. John Elliot, Chairman of the Railway Executive, has made it clear in an article in *The Manchester Guardian* that there is no complacency on British Railways regarding the condition of stations. There are, he points out, over 6,000 passenger stations on British Railways, many of which fell into bad condition during the war and have since suffered from arrears of maintenance. The inquiry will therefore pay immediate attention to industrial areas where such arrears have been particularly serious. Mr. Elliot's frank statement that "sloth and untidiness are indefensible" is a sign of the vigour with which the committee will attack its work and gives rise to the hope that the now somewhat time-worn alibi of the railways' inheritance of premises in outmoded architectural styles, will not be accepted as an excuse for slovenliness.

British Railways Class "2" Standard Locomotive

THE Darlington Works has recently completed the first of the British Railways standard 2-6-0 type locomotives, designed for branch-line, mixed traffic, and passenger train operating. Designated class "2," the engines will be allocated to the Western Region, and will undertake duties similar to those performed by the "2251" and "2301" classes of the 0-6-0 type. The locomotives are

the smallest of the tender type standard engines, but embody to the fullest possible extent features of design common with other standard types which are conducive to ease of maintenance and simplicity of operation. The principal dimensions of the boiler are identical with those of the L.M.R. 2-6-0 class "2" locomotives, and the boiler mountings are similar to those obtaining on other standard designs, a feature which simplifies manufacture; the smoke-box is also self-cleaning. The tender, although somewhat lighter, is basically similar to other standard types, and the wheelbase is the same as the class "4" tender, which is 13 ft. British Timken roller bearings are also fitted in the new class.

Transport Bill at Report Stage

ANOTHER step in the progress of the Transport Bill was taken as we closed for press, the debate on the report stage having begun in the House of Commons on Wednesday. The revised Bill remedies some of the defects of the original version published last July, notably in modifying the scope of the proposed levy, which at first was to have been applied in part to compensating the railways for loss of traffic to the roads; and in holding out to the railways the freedom in charging they have sought so long. On the other hand, the clauses on charges are not to apply until schemes have been approved by the Transport Tribunal, a process involving delay during which the railways would be facing free road competition under their present disabilities. The clauses on railway reorganisation added little to the nebulous phrases of the original.

It is not yet known precisely what is meant by the "areas" that must figure in the scheme to be presented to the Minister of Transport by the British Transport Commission, but the spirit in which the idea was conceived emerged in the Minister's speech when the Bill was debated on November 17. He said he had not met a single railway officer who did not deplore the fact that under the organisation set up by the Transport Bill of 1947 the Chief Regional Officer had lost much of the status of his counterpart of former days—the General Manager. The Government had in mind a substantial measure of Regional authority, but there must be central responsibility for such matters as charges, wages, and standardisation of locomotives. A detailed scheme of decentralisation would have to be prepared by railwaymen. In spite of this acknowledgment of the domestic nature of such a scheme, the Bill itself provides that it must be published for public inspection and that any bodies feeling themselves affected by its terms may make representations about it.

When the Bill was in the Committee stage during December, the Minister returned to the question of railway reorganisation in answering Mr. Herbert Morrison's proposed amendment to delete the subsection abolishing the Railway Executive. Mr. Lennox-Boyd acknowledged that "abolish" was an unfortunate word because it carried with it an ungenerous connotation. But strong central control was not necessarily the right set-up for the future. The Act of 1947 had discarded the previous principle of a general manager being responsible for ensuring that the particular sectional interests of one officer were subordinated to the wider interests of the railway as a whole. Instead, each Member of the Executive had become a departmental manager issuing orders down the departmental line so that at Regional headquarters there was some dualism of control. It has been rare to hear satisfaction with the present set-up expressed at any level. That there is some feeling in favour of decentralisation among all grades of staff is evident from the pains that have been taken by the supporters of the 1947 measure to warn them against entertaining such sentiments. The concern of railwaymen is not with who owns the railways but with how they should be worked, and in this matter public ownership may well have something to learn from over a century's experience of private management.

Symposium on British Railways

IF there had been any doubts as to whether two papers could constitute a symposium, they were overcome on hearing the mass of material for discussion presented in the contributions read at a meeting of the Metropolitan Section of the Institute of Transport on Monday. The authors of the papers for this Symposium on British Railways were Mr. A. E. Hammett, Commercial Superintendent, London Midland Region, who spoke on "The Commercial Aspect of British Railways"; and Mr. S. W. Smart, Superintendent of Operation, Southern Region, whose subject was "Operating." Mr. Smart was unable to be present, and his paper was read by Mr. H. B. Taylor, Assistant Operating Superintendent. Both speakers were congratulated by Mr. F. Gilbert, who was in the chair, on the adroit and fearless manner in which they defended their points of view in the ensuing discussion.

Mr. Hammett's paper outlined the commercial structure of British Railways, in which the headquarters commercial organisations of the six Regions function through 62 district or area establishments, and approximately 8,000 passenger and freight stations, supplemented by town offices and agencies, each of the districts being responsible to its particular Regional headquarters for a manageable number of stations or depots. He considered that it was in passenger transport that there lay the greatest scope for the creation and stimulation of business. In these days of intensive competition the most important considerations influencing the users of transport were "price" and "service." In the present national economic situation, "price" had become almost the only consideration with a vast number of the travelling public, particularly the holidaymakers.

Speaking of the freight side, Mr. Hammett said the collection, loading, unloading and delivery of freight traffic was wholly the responsibility of the Commercial Department, for which it employed nearly 27,000 motor and horse-drawn vehicles for road collection and delivery services and just over one million wagons for rail conveyance. With certain classes of traffic experience showed that from the user's point of view "service" usually was more important than "price," particularly in times of national economic difficulty, when wholesalers and retailers were reluctant or unable to maintain large stocks of goods. In consequence orders which are on a "hand to mouth" basis, require urgent fulfilment and therefore a quick transit. A speedy and reliable transit was still one of the railway's strongest selling points and by means of periodical tests there was constant endeavour to effect improvements.

Mr. Hammett concluded with the reminder that technical improvements in themselves could not be expected to create a greater desire for travel by rail. So long as the railways suffered the handicap of restrictive legislature in their charging arrangements, traffic would flow to the cheapest form of transport, particularly in the present phase of national financial stringency.

Mr. Smart's paper, read by Mr. Taylor, dealt in some detail with the Southern Region operating arrangements; particularly the system devised to minimise delays and achieve an efficient result from a punctuality standpoint. In passenger transport punctuality was essential if the advertised standard of service was to be maintained—otherwise the railway would be guilty of selling substandard articles. The success of the system was shown by the fact that the average minutes late arrival of passenger trains had been reduced from slightly over 8 min. at the end of the war to about 1 min. for steam trains and $\frac{1}{2}$ min. for electric trains. Comparable freight figures were 25 min. and about 2 min. The Region had five District Train Supervision Offices, all in direct telephonic communication with essential points within the district and also the Headquarters Supervision Office at Waterloo. The actual passage of trains over the lines is reported currently from signal boxes and stations to the district offices concerned and by them to headquarters, where statistics were compiled daily for scrutiny and, where necessary, discussion at the daily morning passenger and freight conferences between headquarters and district officers. He had heard it said that the reporting and recording of trains

did not keep them to time. His answer was: nor does a cash register prevent money being taken from the till. What these devices did show was any deficiency in the cash. In the same way, records of running showed up deficiencies and enabled prompt steps to be taken to effect remedies and at the same time obviate a rot setting in.

Operation of a reliable service needed the co-operation and interest of all the staff concerned. With a view to fostering these features it was the practice for a number of meetings to be held each month at selected places in each district, and to arrange the attendance of a cross-section of the staff including stationmasters, inspectors, drivers/motormen, signalmen, guards, shunters, porters, ticket collectors, carriage cleaners, and others, any one of whom was at liberty to enter into the discussion and suggest improvements or economies, and so on. Higher up the scale, the Superintendent of Operation held passenger and freight train conferences each month with the district superintendents and their train timing and running staffs, at which on the passenger side representatives from the Motive Power and Mechanical & Electrical Engineers' Department attended. Towards the end of the Summer service, the Superintendent held meetings in each district, at which stationmasters concerned were present, to consider the next season's service, and it was at these meetings where the anticipated requirements are decided on. On the Motive Power side interest is kept going by the exhibition of monthly league tables at each depot. These tables showed the number of train-miles run by drivers attached to each depot; the number of minutes lost per thousand miles run, and the position of each depot in relation to others in the same league.

A lively discussion ranging over subjects from the use of statistics to the organisation of ramblers' outings followed presentation of the foregoing papers. Considerable interest was shown in the question of comfort and service for the passenger. In this connection Mr. Taylor mentioned Southern experience with the open-type third class coach with ordinary side doors. It filled and emptied quickly, and had the advantage that a standing passenger could see when a seat became vacant at the other end of the vehicle. After operating experience with the double-deck coach, which at first had seemed as if it might be the answer to the passenger problem, the Southern had decided to go all out for longer trains. Answering questions on fares and facilities, Mr. Hammett reminded the meeting that the present three-month return was 1.75d. per mile against the 1.79d. of the previous monthly return, so that there could be no complaint at the disappearance of the latter. Special fares were decided at District Officer level, and these officers would always receive suggestions from stationmasters and others who saw possibilities of developing traffic.

Standardising the Running in Spain

IN deciding at the introduction of railways whether to adopt left- or right-hand running on double lines engineers in the different countries were actuated by various motives, so that both methods are used extensively today. The logical arrangement no doubt would have been to follow in each case the rules applying to street traffic in the country concerned, as was done generally in Great Britain, though one or two odd instances of the opposite practice were seen there; but English influence in railway engineering was so strongly felt at first that left-hand running was adopted on railways in lands where the right-hand rule obtained on the highway, and the consequences are seen in France, Belgium, Switzerland and elsewhere. In a few cases, as in certain South German States, left-hand running was adopted at first but abolished later in favour of the arrangement in harmony with street traffic practice.

In Spain a curious situation arose, in consequence of the two principal railways, the Norte and Madrid-Zaragoza-Alicante, adopting opposite methods, the former being a left-hand, the latter a right-hand line. The reasons for their doing that apparently are not in evidence, but in a

recent issue of our contemporary *Ferrocarriles y Tranvías* a retired M.Z.A. engineer, Señor Manuel Wehrle, reviewed the question and dealt with some of the difficulties and peculiarities of operation arising from this variation. It is not clear which was the first double line section in Spain but wherever it was, and whatever its method of working, that method, he considers, should have been adhered to generally thereafter.

The lines of less importance than the Norte or M.Z.A. either followed their own ideas or, if in direct communication with one or other of them, took their practice from that one. Considering that the Minister of Public Works of the day early exercised appreciable powers of supervision over the railways, his failure to regularise so important a matter is criticised by Señor Wehrle. The results are seen in the present contradiction and inconvenient situation on the R.E.N.F.E., nationalised system, where there are some 500 miles of each kind of working. Were nothing to be done and extensions or new doublings to be carried out, these figures easily might increase to many times the present amount and the problem would become graver than ever.

The superposition of the two methods has existed for many years on part of the former M.Z.A. railway between Casetas and La Almozara over which the Norte trains ran, while today, for the better convenience and utilisation of staff, employees are often changed from one section to another of the system and thus may have suddenly to adjust themselves to the opposite practice, which might occasion some risk in station working. In addition, through engine running is now found advantageous and can result in a driver passing from one type of running to the other more than once on a journey without, as was formerly usually the case, a section of single line inter-vening.

In a later issue of the paper appeared a very interesting letter commenting on Señor Wehrle's article from Señor D. Mendizábal, an Assistant Manager of the R.E.N.F.E., which stated that this matter had been debated by the authorities and a policy decided in July, 1950, when a Ministerial Order established right-hand running as standard for all new lines and announced that the conversion of the present left-hand operated routes was to be undertaken, as and when opportunity and funds should permit. All new schemes for railway works and extensions were to be drawn up on that basis. To change the existing left-hand routes was not considered particularly urgent, but any further extension of that method was to be avoided, except perhaps temporarily, on a small scale, where otherwise inconvenience would arise locally. In applying new electrical signalling on those routes the signals would be placed for left-hand working; but all apparatus cases and connections were to be so arranged that a subsequent changeover to right-hand running would simply mean moving the signals themselves without other disturbance.

Passenger Service Losses in U.S.A.

FROM 1936 onwards the U.S.A. Railways have lost money on their passenger train services, except during each of the war years 1942-45. When large movements on Government service ceased in 1946, passenger train earnings again failed to meet expenses and the deficiency grew year by year to \$680 million in 1951. That loss was calculated on a "full cost" basis, which debited passenger train service not only with expenses related solely to its operation, but also with a share of joint costs incurred in working both freight and passenger services. The loss on carrying passengers was \$466 million and on "head end traffic," such as mail, parcels, milk, and baggage, \$214 million. On the basis of direct costs, related solely to passenger train service and excluding any allowance for return on property or equipment used, in that service, the loss on passengers became \$283 million and on "head end traffic" \$135 million, making a total deficit of \$418 million.

These mounting losses are causing the railways much concern. In a recent address Mr. J. P. Newell, Vice-President (Operating), Pennsylvania Railroad, said that "the deficit which results from our passenger train operation is so great that it is perhaps the most serious challenge to the solvency of the railroads." He urged that the position was not due to lack of enterprise on the part of the railways. In six postwar years they spent over \$600 million on capital improvements to passenger coaches and almost \$500 million on passenger locomotives. Much money was spent also on roadway and structures to benefit passenger service. Despite a cut of nearly 40 per cent in the Pennsylvania passenger train-miles since 1946, a fifth of the present train mileage does not earn enough to cover out-of-pocket costs and at least three-quarters of that mileage fails to meet the full costs of its provision—truly a sad state of affairs, for the Pennsylvania has incurred heavy expenditure on passenger train facilities of all kinds; for example, in 1951 some \$3,780,000 was authorised to provide wayside cab signalling apparatus and electronic speed control devices.

Recently a committee of the National Association of Railroad & Utilities Commissioners published a long report on the causes of railway passenger service deficits and their remedy. After studying the subject for three years, the committee arrived at "no panaceas or trick ways of solving any problem," any more than General Eisenhower did after his tour of the Korean battle zone. It endorsed the policy which the railways have been pursuing, but suggested that they intensify their efforts to withdraw unremunerative train services. Publication of the report may influence the Interstate Commerce Commission and other State regulatory bodies to treat appeals from the railways, designed to improve net earnings from passenger train services, with greater dispatch and sympathy than on many recent occasions.

For the nine months ended September 30, 1952, the railways had larger passenger train earnings and also improved their financial position. Passenger revenue increased by \$21.9 million (3.3 per cent), mail payments by \$48.8 million (27.1 per cent) and express (or parcels) receipts by \$38 million (66.8 per cent), largely because of various advances in passenger fares, sleeping and parlour car charges, mail pay, and express rates, approved by the Interstate Commerce Commission during 1951. The Korean war also tended to increase passenger travel, while stoppages of work in the steel and coal mining industries reduced both the passenger and freight carryings of many lines. The table below contrasts the results of the Pennsylvania, operating in the disturbed Central Eastern district, with those of the Santa Fe, traversing the quiet Central Western territory.

REVENUE AND EXPENSES, NINE MONTHS TO SEPTEMBER, 1952
AND 1951
(\$000,000)

	Pennsylvania			Santa Fe		
	1952	Incr. or decr. on 1951	Per cent	1952	Incr. or decr. on 1951	Per cent
Freight revenue ...	\$556	\$-29	- 4.9	\$357	\$+17	+ 5
Passenger revenue ...	118	+ 4	+ 3.9	44	+ 5	+14.6
Total operating revenue ...	750	-18	- 2.3	442	+31	+ 7.5
Operating expenses ...	633	-30	- 4.6	313	- 4	- 1.2
Net railway operating income ...	52.5	+13.1	+33.2	52	+14.6	+39

The two railways by different means attained almost the same net railway operating income (or earnings before charges). Both had higher receipts from passenger travel, but the takings were merely a fraction of the freight revenue.

The Pennsylvania is the largest rail carrier of passengers in U.S.A. In 1951 it ran passenger trains over 5,418 miles of road, carrying 30.4 million commuters for short distances, 41.8 million coach passengers for an average distance of 71 miles for 3.04 cents a mile and 4.6 million

people in sleeping or parlour cars for 294 miles at 4.15 cents a mile. The Santa Fe, with 9,140 miles open for passenger trains, carried only 3,676 commuters, 3.1 million coach passengers for 427 miles at 2.03 cents a mile, and 807,400 travellers in luxury cars for 1,089 miles, on an average, at 2.87 cents a mile.

Neither set of services was profitable, though during 1951 the Pennsylvania withdrew passenger trains from 64 miles of road and the Santa Fe from 96 miles. If carried much further, the policy of cutting out services may destroy the friendly interest which the public used to take in railway working. Already many Americans have ceased to think of the railway train as the natural agency for taking them about the country, and their number will grow as road vehicles and aeroplanes multiply, often with the help of Federal or State subsidies.

Developments across the Atlantic hold a lesson for British Railways. The make-up of their passenger traffic changes rapidly, and in the near future the rivalry of the private motorcar, the motorcoach and airlines is likely to deplete the net revenue formerly derived from many main-line trains. The forthcoming inquiry into a new passenger charges scheme may show that the whole structure of railway fares will have to be modified considerably if steam coaching mileage is to be self-supporting.

Economy in Fuel

MUCH attention has been given in recent years to the necessity of saving coal by improved methods of combustion, and the use of waste heat. Mr. W. E. P. Johnson, Managing Director, Power Jets (Research & Development) Limited, in presenting his paper "Use and Abuse of Fuels" before the Royal Society of Arts recently, said that the steam locomotive had an inefficiency under average conditions of about 95 per cent. Of every 100 tons of coal cut, raised, cleaned and carried to fill a locomotive tender, 95 were thrown away uselessly and in part harmfully; the figure did not include the coal used to get and carry the coal. The diesel engine was probably the best type of heat engine in common use. We only need to afford an inefficiency of some 65-75 per cent to operate it; the exact amount depended on the engine itself, its duty, and whether it is run steadily within a specified, and quite wide range of power.

The gas turbine can easily surpass any machine in reducing inefficiency, if properly designed, and equipped for a particular duty. That it had not yet done so was chiefly because no one had thought fit to design the expensive versions necessary; examples were running which proved this contention, said Mr. Johnson. It was a matter of conviction, rather than conclusive proof, that soon gas turbines would be built with an inefficiency not greatly in excess of 50 per cent. A great proportion of the heat rejected by a gas turbine—which best accounted for nearly all the inefficiency—could be so rejected at a temperature or in a "grade" which rendered it directly useful. A steam generator set; if it was to operate with an inefficiency of 70 per cent, must reject most of its waste heat at an unsaleable temperature, nearly atmospheric; a gas turbine on the other hand rejected at approximately 250° C.—the figure varied widely with the design—and could therefore sell its waste heat.

The oldest type of prime mover, the steam engine, although undergoing enormous favourable changes during the first half-century of its existence, had not much attention paid to it during the last half-century. The internal combustion engine had developed because its applicability covered such a wide range. The gas turbine was first developed mainly on the lines of extremely high output and relative inefficiency, and was unique in that its application ranged from the very large plant type to the small portable class without marked variation of the design approach. The factors making for inefficient fuel consumption were well known and in a large degree remediable. The fact is, said Mr. Johnson, that we must spend to save, to use fuel is all too easy, to avoid abusing it is both imperative and costly.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

A Commercial Revolution

February 3

SIR,—Your correspondent in the January 30 issue would appear to have only limited information about the role of the Traffic Costing Service and its relation to price-fixing. Nor is the stage set, as he calls it, for a headlong collision between the two principles of "what the traffic will bear" and "cost of service." These principles are not alternative to each other. On the contrary, they are the buoys which mark each side of the fairway, often a wide fairway, down which commercial policy must proceed. Whereas one cannot get more out of the customer than he will pay, one does not want to sell one's product at prices which merely increase one's losses. Prices must ordinarily lie somewhere between these two limiting factors, and it is the role of costing to put figures on the cost-factor.

Apart from this, the main function of a costing service is to study the facts. What is done about the facts, however, is a matter for policy.

This is hardly a new idea in the world of business administration, and it is a little difficult to understand why your correspondent should regard it as "revolutionary." There may be a change of emphasis, related to the gradual changes of circumstance during the last generation, but the Commission has already said publicly that fares and charges must in future be more influenced by the cost factor than was necessary when the railways possessed a considerable degree of monopoly.

There are other points in the article which ought to be dealt with if space permitted. For example, your correspondent does not consider what "cost" may mean in various contexts.

However, I will now confine myself to asking why it should be assumed that the Commission and the Executives would not be aware of the importance of contributory value, ancillary user and other such points which must be taken into account, even where they are imponderable.

As for the use of the word "subsidy," this has probably proved its value by helping to bring the problem home to the public who, after all, must be taken with us if big changes in charging relativities, so necessary in a world that has changed, are to be successfully carried out.

Yours faithfully,

J. H. BREBNER

Chief Public Relations & Publicity Officer

British Transport Commission, 55, Broadway, S.W.1

Cost of Station Improvements

February 2

SIR,—Your correspondent Mr. B. C. L. Davies states in your issue of January 30 that the old structure in the Great Hall at Euston "appeared to function with ease and efficiency even at the busiest holiday times." The fact is the structure had become quite inadequate for the function assigned to it, both from the public and staff point of view, and that was the primary reason for its removal at the end of last year.

Mr. Davies goes on to compare the cost of the new refreshment room at Bletchley with that of building a complete house. Such a comparison is invalidated by the fact that the cost of the former (£2,800) includes the demolition of the old refreshment room, the conversion of a general waiting room into an office for the stationmaster, and special catering equipment not usually found in a private residence.

In addition, owing to its location, all materials had to be conveyed up and down two staircases and a foot-bridge.

Answering his final observation, the reason why we have not incorporated a snack bar in the train arrival bureau at Euston is because we have planned to instal one in a more

suitable location elsewhere, namely, by the end of No. 6 platform. The work is at present in progress.

Yours faithfully,

GEORGE DOW,

Public Relations & Publicity Officer

London Midland Region, Euston House, London, N.W.1

Hotels Executive Catering

February 2

SIR,—The letter from Mr. Richard O. Davies under the heading "Hotels Executive Catering" in your January 30 issue seems to be another case of genius waiting to rectify all the known and unknown errors on British Railways. Mr. Davies might have a shock if the Hotels Executive took up his challenge and gave him an opportunity not only of receiving the profits but shouldering the losses. It is quite obvious that whatever commercial knowledge he has of the catering industry, he has little or no knowledge of the overheads associated with catering on trains. If he has, I do not think he would have written a letter which implies that the members of the Hotels Executive are first-class duds whilst he with (to use his own words) "seven years of high-grade catering" to his credit would seem to have imbibed all the knowledge necessary to make catering a success in every phase.

I recommend the British Transport Commission to give Mr. Davies a shock by giving him the job, and then publishing the results after twelve months. I think they should be illuminating.

Yours faithfully,

H. W. FRANKLIN,
President

The National Union of Railwaymen,
Unity House, Euston Road, N.W.1

"Frosted Glass"

January 29

SIR,—Reading your amusing article entitled "Frosted Glass" in the January 9 issue brings to mind a conversation I had a few weeks ago with a friend of mine.

He told me of a recent train journey, and in particular his experience in the dining car. Although it was quite cold outside and warm and "steamy" inside, he had a perfectly clear view through the large window at his elbow whilst the top opening windows were misted and literally streaming with water. Thinking this rather novel he examined the glass and in doing so found it quite warm to the touch. He noticed that this large window consisted of two sheets of glass with a space between them.

I am wondering if this is an exception or an experiment to determine whether we will all be able to travel in carriages with mist-free windows and further, why two pieces of glass?—Yours faithfully,

K. W. HASELDEN

469, Wigan Road, Bryn, nr. Wigan.

[It appears that our correspondent refers to a coach from one of the L.N.E.R. pre-war high-speed trains, in which double windows were fitted to assist sound insulation. It is not normal practice to fit them in this country, but they are found overseas, the air space between the glasses acting as a "dehydrating layer" and preventing misting.—ED., R.G.]

CLOSING OF CHEDDINGTON-AYLESBURY BRANCH, L.M.R.—The London Midland Region branch line between Cheddington and Aylesbury High Street was closed on February 2. Marston Gate and Aylesbury High Street stations are now closed for passengers, parcels, and passenger train merchandise. Parcels and passenger train merchandise for Marston Gate are being dealt with at Tring. Similar traffic for Aylesbury is dealt with at Aylesbury (Town).

THE SCRAP HEAP

Round in Forty

The time in which a journey round the world can be effected will be reduced to forty days, when the improvements for fast traffic on the Siberian Railway are completed next year.—*From an issue of "The Evening News" in January, 1903.*

A P.R.O.'s Responsibilities

On his appointment as Commercial Advertising Officer, British Transport Commission, Mr. George Dodson-Wells leaves a department of the London Transport Executive, where he has been Chief Public Relations Officer, which deals with 680,000 traffic inquiries and 79,000 public letters a year. It is responsible for the siting and maintenance of 22,000 bus stop posts and traffic data publicity displayed on them; the servicing of over 2,000 passenger shelters; supervision of 40,000 direction signs on underground stations; and fixing and maintenance of commercial advertisements on L.T.E. road and rail vehicles and properties; as well as traffic promotion activities through various publicity media.

From 4-4-0 to 4-8-4

A contrast in motive power on the Minneapolis St. Paul & Sault Ste. Marie Railway (Soo Line) is shown in the two photographs reproduced below which were sent us by Mr. A. J. Richards, who received them from an American correspondent. The Baldwin 4-4-0 on the left was the last locomotive with that wheel arrangement to remain in service on the railway. One of a batch built in 1879-80, it was at work until 1941. When the photograph was taken, in 1938, it was under repair at Minneapolis.

In the year the 4-4-0 was undergoing its repair as illustrated, the railway introduced the class "0.20" 4-8-4 shown in the right-hand illustration. This type was built by the Lima Locomotive Works and is used on through main-line freight service between Minneapolis and Chicago, a 437-mile journey in the course of which four locomotives and four crews are used in each direction.

Driving wheel diameter is 6 ft. 3 in., cylinder dimension 26 in. x 32 in., and boiler pressure 270 lb. per sq. ft. They have a grate area of 88.3 sq. ft., heating surface 5,142 sq. ft., and superheater 2,120 sq. ft.

Mailbag Apparatus Prohibition

The label reproduced below, which was sent to us by Mr. C. G. Barnard, is now obsolete, but was in use early in the century to explain to recipients of fragile packages why their delivery might have taken a little longer than if they had been sent by T.P.O. The



Post Office label formerly attached to articles diverted from T.P.O. services

present Post Office instruction regarding the treatment of such missives reads: "Any registered letter marked 'fragile with care' and any other packet which from its size, weight or character is unsuitable for transfer by the mailbag apparatus must be excluded from a bag which at any point of its journey is so transferred."

Why Branch Lines are Closed

The Executive's policy is to close all branch lines as a preliminary to shutting down the railway system as a whole. Methodical as ever, they are doing this by closing the branches in alphabetical order. In the Aberdeen area, stage one was successfully completed with the closure of the Alford branch. . . . The first principle in this process must obviously be to discourage the public from using the trains. The Executive are to be con-

gratulated on the notable success they have already achieved in this respect. Raising fares has been found to be particularly helpful. . . . By such methods as these it is hoped to reduce the number using the trains until only the dependants of railway employees (who travel at reduced rates) are left. This final obstacle will then be removed by dismissing the offending employees.—*From a letter to the "Press & Journal" (Aberdeen).*

To a Milk Churn

Sleek, silvery symbol of the long ago, Familiar as the friends I used to know, Where art thou now? Hast drifted with the stream
Into the dim recesses of a dream, Or is it true, that, by some lonely road, Thy spectral body, with its lactic load, Still waits with silent patience for the van
To expedite thee to the haunts of man?

I well recall how, with resounding bang, Greeting the platform with accordant clang, Thy brisk rotundity, thy cheerful noise Proved so attractive to the porter boys; With what rare skill they raced thee down the ramps
Before attending to the signal lamps.

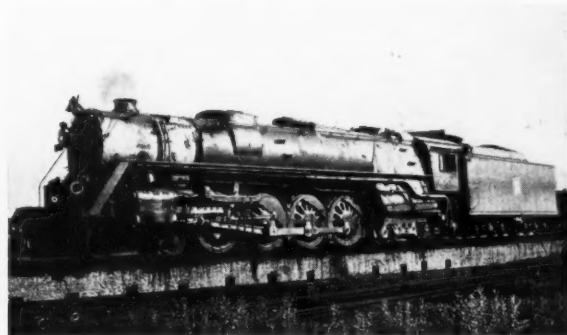
Then every branch line had its toll Of milk-floats in the yard, and any soul, Subservient to no callous combine's whim, Could tap the milk-man for a quart of "skim." Now, at Vauxhall, the shining, serried ranks Have given place to unromantic tanks.

Thus one more link goes into the discard; Small wonder that we ancients find it hard To reconcile these harsh and hectic days With those unhurried, happy, halcyon ways. How comforting to know that, up to now, No one has found a "stand-in" for a cow!

A. B.



Photos.]



[R. Peterson

The last Soo Line 4-4-0 locomotive undergoing repairs in its declining years (left); and one of the same system's Lima-built 4-8-4 "0.20" class (right)

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

Opposition to C.N.R. Dieselisation

An appeal to the Federal Government to defer dieselisation of Canadian National Railways motive power in the Atlantic Region is reported to be intended by a group representing Nova Scotia mineworkers. The trades union and management of the coal industry maintain that the industry is threatened with disaster if dieselisation is adopted before new markets can be found for coal.

Safety Campaign

An indication of the value of the educational activities among Canadian National Railways employees in the Atlantic Region in the prevention of injuries, is the fact that for the second year in succession the Car Department at Sydney, Nova Scotia, has had no lost-time injuries.

Safety Instruction Car No. 15020 has been making a tour of the lines of the C.N.R. in the Maritime Provinces and Quebec, and so far 6,000 railwaymen have received instruction.

Education in accident prevention is both visual and oral; the instruction car is equipped with moving and still film projectors and other appliances with living accommodation for instructors. On exhibit are safety devices such as steel-capped boots and shatter-proof goggles for use of employees in shops, running sheds, and elsewhere.

ARGENTINA

Accident to "El Marplatense"

The air-conditioned express "El Marplatense" of the General Roca Railway was involved in an accident near Camet station on January 14, when shortly after leaving Mar del Plata it collided

head on with an express from Buenos Aires to Mar del Plata. Because of the low speed there were no casualties, but a number of passengers suffered slight injuries and damage was done to both trains. "El Marplatense" was being hauled by the Argentine-built diesel locomotive *Justicialista* in which Engineer Pedro L. Saccaggio, its designer was travelling. The cause of the accident has not been established but the steam-hauled Buenos Aires "Mar del Plata" was running three hours late, double headed, after being delayed by locomotive trouble *en route*.

FRANCE

S.N.C.F. Staff Housing

Some years before the 1914-18 war the railways provided houses for certain grades of staff. They ranged from individual dwellings for level crossing keepers to garden cities near marshalling yards and workshops. By the end of 1937 when the railways came under the control of the S.N.C.F., accommodation was provided for more than 60,000 employees; in addition, assistance was given to members of the staff wishing to buy houses.

The second world war prevented the S.N.C.F. from developing this policy. At the end of the war it had not only to rebuild 17,000 houses destroyed or damaged but meet a demand for 18,000 new houses. By the beginning of 1952, despite postwar housing difficulties, it had made fit for habitation 11,600 privately-owned and 4,000 railway-owned houses occupied by railwaymen who were unable to carry out their own repairs; the privately-owned houses were rented by the S.N.C.F. when accommodation for staff was hard to obtain after the war. In addition, 5,000 new

dwellings had been built and preliminary plans drawn up for a further 9,000; 700 employees were helped to build their own houses.

The S.N.C.F. estimates the cost of building three- and four-roomed homes varies between fr. 700,000 and fr. 900,000 (£700 to £900), excluding the cost of the ground or of the provision of common services such as drainage, water supply, and light and power. The standard measurements adopted by the S.N.C.F. are a floor area of 70 to 85 sq. metres (753 to 914 sq. ft.) for three-roomed houses, 80 to 100 sq. metres (861 to 1,076 sq. ft.) for four-roomed houses, and 95 to 120 sq. metres (1,022 to 1,291 sq. ft.) for five-roomed houses. Rents are based on a computed area with the proviso that they shall not exceed the subsidised rents for similar type houses under other schemes.

Lyons-Marseilles Electrification

Monsieur André Morice, Minister of Public Works & Transport in the last Government, has stated that he hopes that the cabinet will soon approve the electrification of the Lyons-Marseilles section. The completion of the electrification of the Paris-Marseilles line would yield considerable operating economies; longer, heavier, and faster trains could be run, and it is considered that, on the average, 45 minutes could be saved between Lyons and Marseilles on present timings.

ITALY

New Tunnel on Simplon Line

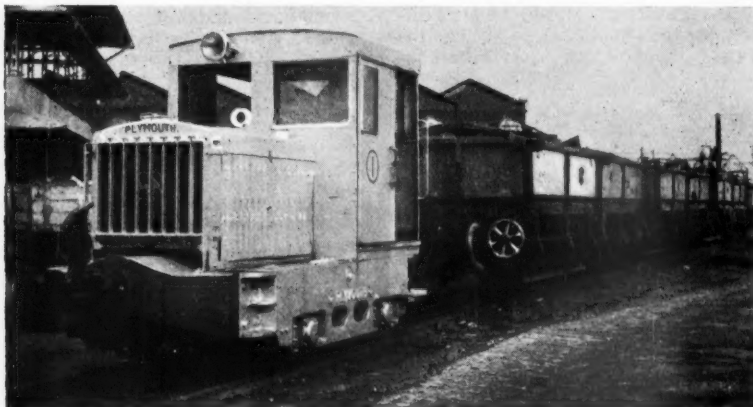
On November 12, 1951, a landslide caused by heavy rain blocked the Simplon line between Preglia, 2½ miles north of Domodossola, and Varzo, some six miles further north in the narrow valley of the Diveria river. Both tracks were blocked, and the "Simplon Orient Express" and other international trains, had to be diverted first *via* the Gotthard and subsequently *via* the Mont Cenis route.

While the débris was being cleared local passenger traffic between Domodossola and Brigue, at the Swiss end of the Simplon Tunnel, was carried by road services plying between Domodossola and Varzo, while the Swiss Federal Railways worked connecting shuttle services between Varzo and Brigue.

Although the work of clearing the débris continued night and day, it was only on December 27, 1951, that the Italian State Railways could resume local traffic north of Domodossola.

The point at which the landslide occurred had proved troublesome on previous occasions. In view of the international importance of the Simplon route the Italian State Railways decided to realign the section concerned through a new tunnel. Work was taken in hand without delay.

Petrol Shunter Converted to Diesel



One of three Malayan Railways shunting locomotives working at Kuala Lumpur in which the previous petrol engines have been replaced by Perkins "P6" diesel engines

The double-track tunnel, 2,830 ft. long to be known as Rio Redo Tunnel, is to be opened to traffic on February 8, though with only one track temporarily in use. The second track will be opened to traffic by the end of February. The cost of the tunnel is about £750,000. The open section of the line almost paralleling the tunnel is to be reconditioned and goods trains are to be routed over it when meteorological conditions allow.

WESTERN GERMANY

Karlsruhe-Basle Electrification

Discussing traffic problems of joint Dutch and German interest with the Netherlands Minister of Transport recently, the West German Minister of Transport, Dr. Seehofer, pointed out that the impending electrification of the Karlsruhe-Basle main line would cost about £15 million. Switzerland is particularly interested in this project, which would much improve her railway connections with Belgium, the Netherlands, and Great Britain. The Swiss Government is stated to have agreed to contribute some £12 million towards the cost. Dr. Seehofer said that conversion would take about four years to complete.

Transport Exhibition at Munich

Satisfactory progress is reported on preparations for the transport exhibition (*Grosse Deutsche Verkehrsausstellung*) to be held in Munich on June 20-October 11. It will embrace all forms of surface and air transport, and kindred activities such as shipping and for-

warding, tourism, posts, and telecommunications. Exhibits will be housed in fourteen large halls, and the total area of the exhibition including grounds is 120 acres. The exhibition will have a railway station of its own; other features will comprise a miniature railway, an airport for helicopters, and a fun fair.

DENMARK

Engineering Works in 1952

Engineering works in 1952 included further work on the extension of the Copenhagen suburban lines along the Roskilde main line from Valby to Glostrup where electric operation is to be introduced this summer. The construction of flying junctions at Valby and Vigerslev is almost complete, and reconstruction of Valby Station is nearing completion. New subways are under construction at Valby, Glostrup, and Brøndbyøster Stations. Land has been acquired for a new depot for electric suburban trains west of Glostrup. To provide for a proposed strengthening of the electric services, new substations are being built.

In Jutland, the doubling of the Aalborg-Randers main line, referred to in the February, 22, 1952, issue, has made further progress. The reconstruction of Hobro and Svendstrup Stations has been completed, and work has begun on that of Stovring Station. On the Svenstrup-Ellidshøj section, double-track working was introduced with the summer timetable.

Doubling has also begun on the Lun-

derskov-Tinglev main line in South Jutland. At Odense, much progress has been made with the important work of diverting the tracks of the formerly private South Fyn Railways into the State Railways station. At Skive, in North Jutland, the two existing stations are being replaced by one station on a new site as recorded in the August 1, 1952, issue. Similar works at Frederikshavn and Brønderslev will begin shortly.

With a view to increasing the ferry service across the Great Belt, a fifth ferry berth has been built at Nyborg; structural improvements have been carried out at Korsør.

SWEDEN

Trelleborg-Travemünde Ferry Service

The new passenger and road vehicle ferry service between Trelleborg in Sweden and Travemünde on the Baltic coast of Holstein, some 50 miles from Hamburg, begins on June 9. The service will be worked by the Swedish ferryboat *Drottning Victoria*, 3,500 tons, equipped to carry 565 passengers and 100 road vehicles. The crossing will take 9½ hr.

Trelleborg was the Swedish terminus of the prewar train ferry service to Sassnitz, which port now is in the Russian Zone. By this route through sleeping cars worked between Stockholm and Berlin Stettinerbahnhof via Malmö. Sassnitz is on the island of Rügen, which was linked with the German mainland by a causeway carrying the railway, destroyed during 1939-45, but now reported to be rebuilt.

Publications Received

The Structure and Capacity of Australian Manufacturing Industries. Prepared by the Division of Industrial Development in the Department of National Development and distributed for the Commonwealth Government by Angus & Robertson Limited, 48, Bloomsbury Street, London, W.C.1. 13 in. × 8½ in. 528 pp. Price £3.—This study covers the whole range of Australian manufacturing industries and provides a corpus of information on the organisation and interrelation of enterprises and on the adequacy of Australian production to meet the various markets. Each of seventeen industrial groups is dealt with in three parts. The first part gives for each separate activity within the group details of the firms engaged. The second part discusses general operations within the group; reference is made *inter alia* to estimates of capacity, market prospects, and availability of materials and labour. A third part consists of basic statistics for the group. The industries supplying railways are treated in Chapters 9 (metals, castings and forgings), 10 (rolling stock), and 11 (electrical and electronic products). The first of these covers firms producing rails and foundries, forge-shops, and part of the ferrous metals industry which supply the railways directly or in-

directly. Chapter 10, though entitled "Transport Equipment," deals mainly with rolling stock. A note in Part I of the chapter explains that the Australian railways usually do their own civil engineering work. Part I outlines the position of the various bodies of steam and diesel locomotives, railcars, electric suburban and other passenger stock, and goods vehicles. Part II mentions the agreement between Clyde Industries Limited and the General Motors Corporation as to manufacture in Australia of diesel-electric locomotives under licence. It shows why Australian firms cannot meet the Australian railways' steam locomotive demands, and reviews trends and probabilities in other motive requirements, with remarks on the future of electric and diesel traction in the Commonwealth. Signalling and other electrical apparatus is mentioned *passim* in Chapter 11 under the several electrical manufacturing enterprises.

Lighting in Industry. Electricity and Productivity Series No. 2. London: The British Electrical Development Association, 2, Savoy Hill. 9 in. × 5½ in. 154 pp. Illustrated. Price 9s.—Several recent reports on the much-debated subject of productivity have drawn attention to the assistance that can be given in this respect by adequate lighting. Not only can a well-planned installation im-

prove output by reducing strain and fatigue, but by promoting psychological receptivity can help to create the atmosphere in which the best work is performed. Advice on the treatment of general and local lighting problems is given in this book with a wealth of practical examples reinforced by 83 illustrations. Subjects of special interest to the transport and engineering industries covered in the work are the lighting of drawing offices, large erection shops, and inspection pits. The book will help in ensuring that the best methods are adopted for improving the lighting of existing buildings, and should do much to emphasise the importance of co-ordinated planning between architect and illuminating engineer when extensions are being put in hand.

Dorman Long in 1952.—The progress of the Lackenby project, which is being carried out in its entirety within the organisation of the Dorman Long organisation is reviewed in an illustrated booklet "1952 Illustrated" recently issued by the firm. The steel works, when completed, will have an annual ingot production of 500,000 tons, and will be capable of convenient expansion to 750,000 tons; stages of its development are illustrated by a number of colour plates. Other activities depicted include road and railway bridges.

Narrow-Gauge Locomotives for India

*Designed for freight and mixed traffic
on the Dholpur State Railway*

AMONG the locomotives recently completed by the Hunslet Engine Co. Ltd. are two 2-8-4T narrow-gauge engines for the Dholpur State Railway, now part of the Central Railway System. The locomotives, required for mixed-traffic and freight operating, have a maximum axleload of 5.95 tons, and are designed to negotiate a minimum curve of 362 ft. radius.

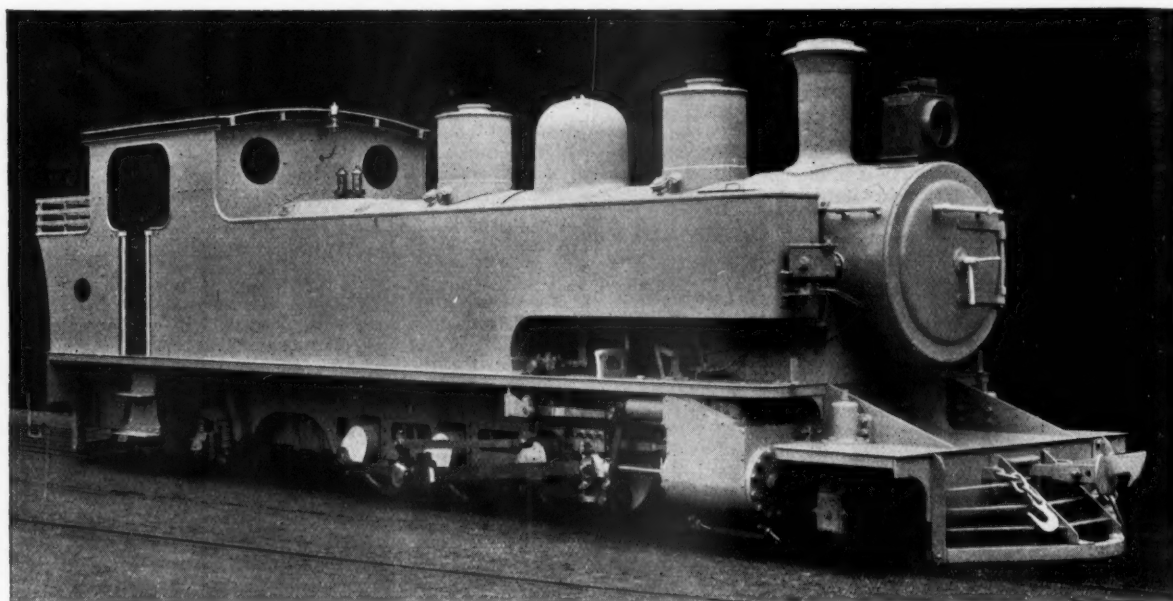
The boiler barrel, of 3 ft. 2½ in. external dia., consists of two rings, the

distance between tubeplates being 12 ft. 7½ in. The boiler, which is non-superheated, has a working pressure of 175 lb. per sq. in., and is fitted with 85 steel tubes 2 in. outside dia. by 12 s.w.g. thick. The firebox has a grate area of 12 sq. ft. and is 4 ft. 9 in. long; it is of the Belpaire type with an inner firebox of copper. The total heating surface is 629.75 sq. ft.; ample washout facilities are provided. The boiler mountings are carried on a manifold situated inside the

cab. Two Ross pop safety valves are provided.

A cylindrical smokebox is fitted and is supported by a fabricated saddle. The sanding gear is placed on the top of the boiler barrel. The ashpan is fabricated of mild-steel plate and arranged with side emptying doors; ash-drenching equipment is provided and is operated from the cab.

The locomotives are of plate-frame construction. The cylinders, 12 in. dia.



Hunslet narrow-gauge, mixed-traffic locomotive for the Dholpur State Railway

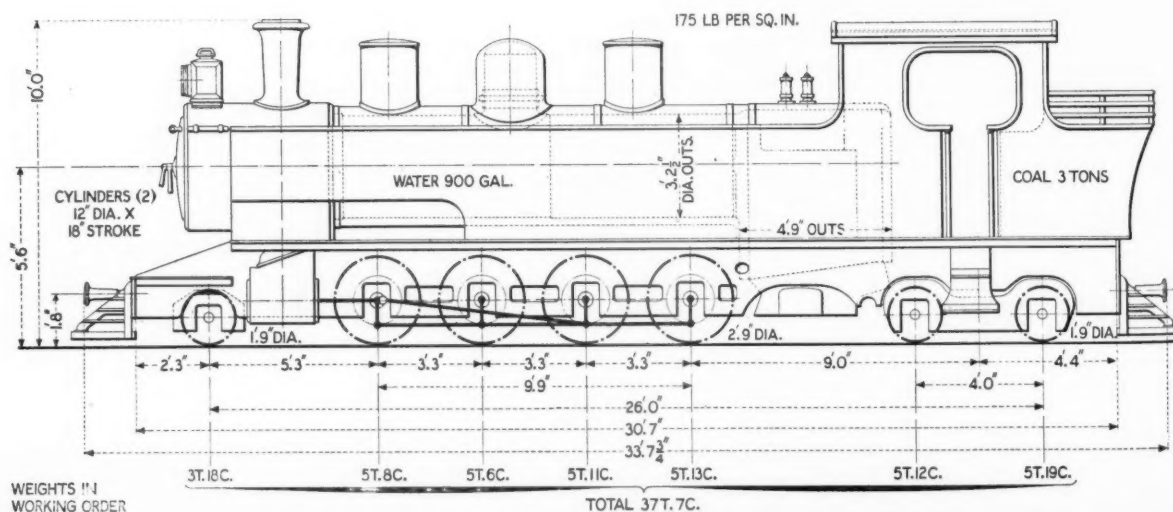


Diagram showing principal weights and dimensions of the locomotive

by 18 in. stroke, are of cast iron, and fitted with balance slide valves actuated by Walschaerts valve gear. Cylinder release valves are fitted and are operated from the cab, while lubrication of the cylinders and slide valves is provided by a Wakefield mechanical lubricator. The coupled axleboxes are of cast iron and are located on the inside of the frame.

Laminated overhung springs are provided for the coupled wheels and helical springs are fitted to the trailing bogie.

The connecting-rod big-ends are fitted with adjustable bearings, and solid bronze bushes are fitted to the coupling rods; oil lubrication is provided. The side tanks are of welded construction and have a total water capacity of 900 gal.

The bunker is also of welded construction and provides for carrying three tons of coal. The locomotives have a tractive effort of 10,310 lb. at 75 per cent boiler pressure.

The following are the principal particulars of the locomotive additional to those on the diagram:—

Cylinders, dia. and stroke	12 in. x 18 in.
Heating surfaces—	
Tubes	574 sq. ft.
Firebox	55.75 sq. ft.
Total	629.75 sq. ft.
Grate area	12 sq. ft.
Boiler pressure	175 lb. per sq. in.
Weight of engine in working order	37 tons 7 cwt.
Tank capacity	900 gal.
Bunker capacity, coal	3 tons
Tractive effort at 75 per cent. boiler pressure	10,310 lb.

British Railways Lineside Furnishings

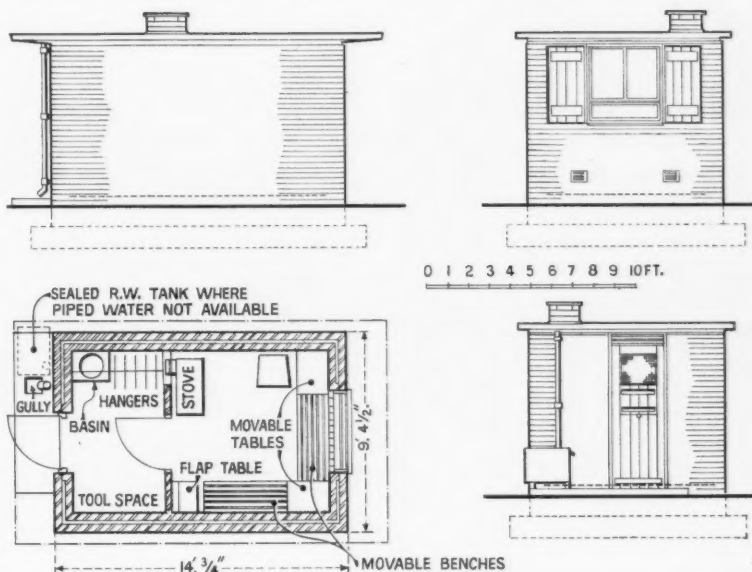
Standard items for buildings and various boundary posts

SEVERAL standard designs have been prepared for lineside buildings and furnishings on British Railways, to facilitate the mass-production of articles of good appearance. Two of the building plans are reproduced herewith. The standard design of lengthmen's hut provides for a brick-built hut to accommodate a permanent way maintenance gang of five men. Below it is shown one of the variations of the four standard signal box designs, type "C." The various designs cover the general layout, floor arrangements, cooking, heating, and sanitary equipment, natural and artificial lighting, and nameplates.

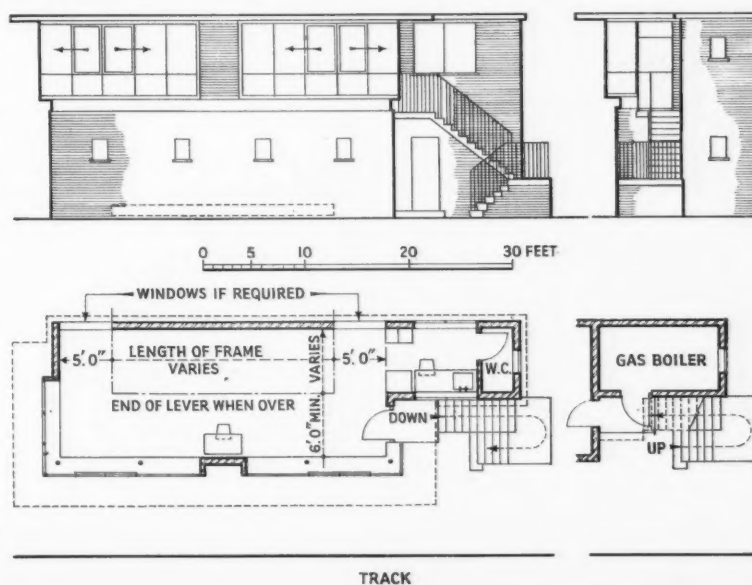
In addition to these buildings, a range of boundary and other posts has been designed. The standard concrete milestone has inset figures on both faces and indicates quarter-miles by means of one two, or three black triangles below the mileage figures. On the Regional boundary post the adjacent Regions are indicated by two-letter abbreviations in capitals 2½ in. high, while below them are two-letter contractions in 1½ in. capitals and small letters of the contiguous districts of each Region. Other types of post in these standard designs show district boundaries, the boundaries of sections and sub-sections maintained by inspectors and gangers, and boundaries of B.T.C. property. The last-named appears in three styles, one of them being an inset type for urban property. These new standard items will be used when renewals are required.

Other items for which standard designs have been prepared are concrete platform lamp posts adaptable for either tungsten or fluorescent lighting fittings, and arranged for wiring through the post from its base to avoid the need for overhead wires.

BRITISH ALUMINIUM LEEDS BRANCH OFFICE.—The British Aluminium Co. Ltd. has vacated its branch office and warehouse at 66, Kirkstall Road, Leeds 3, and has transferred its branch office to Martins Bank Chambers, Vicar Lane, Leeds 1, to handle sales of unwrought and fabricated aluminium and aluminium alloys in the counties of Yorkshire and Lincolnshire. Mr. A. E. Heeley continues as Branch Manager and the telephone number remains Leeds 28343 with telegraphic address, as before, "Britalumin Leeds."



Lengthmen's hut for gang of five men



Standard signal box (one of four variations)

French National Railways Stainless Steel Coaches

Saving in weight and maintenance costs in 36 new main-line vehicles

THE 1950 passenger rolling stock programme of the French National Railways included 200 vehicles for express trains, 36 of which were to be first and second class coaches built of stainless steel.

Construction of these stainless steel vehicles was entrusted to the Etablissements Carel Fouché & Cie, and is carried out with a stainless steel known as 18-8, which comprises 18 per cent chrome and 8 per cent nickel. The characteristics of this steel make external painting unnecessary, with consequent economy in maintenance costs, and at the same time the components of the coaches can be of reduced cross-section so that the frame of a coach built of 18-8 steel

referred to above will be used in the Paris-Metz portion of trains 3 and 4 of the Eastern Region (Paris-Strasbourg-Metz).

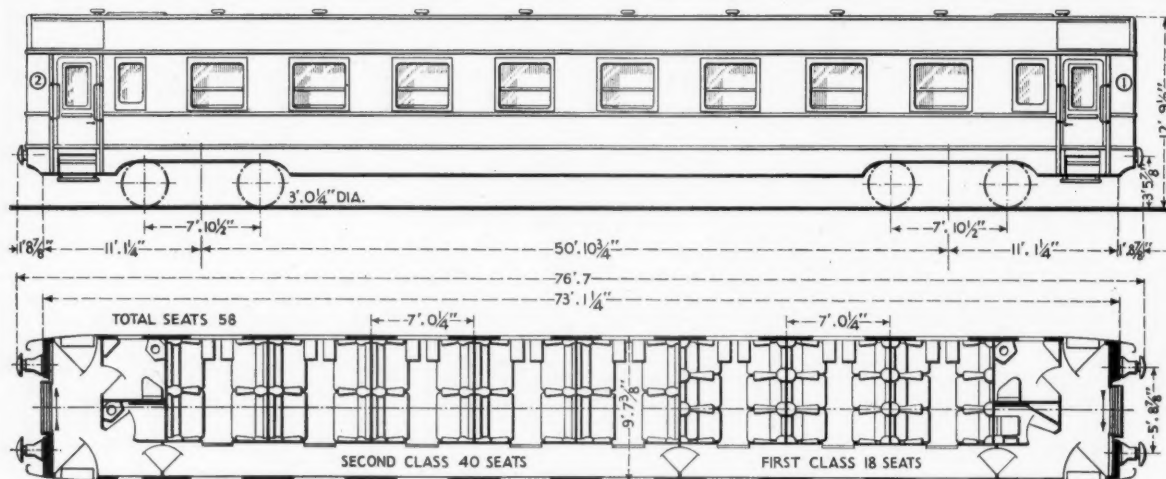
Body Construction

The body components of this stock consist of side sheets, either smooth or corrugated by being shaped with a longitudinal channel; short mouldings formed in a press, or longer ones produced by cold rolling as illustrated in our September 26, 1952, issue; and pressed sheets. In these vehicles pressed sheets are used for the lower and upper parts of the end panels, the end sections of the roof, and the outer framing of bays.

The underframe is the only part of

the gusset; (2) a series of gussets at the waistline connecting adjacent panels; (3) a similar series at the top of the panels; and (4) sheets formed with horizontal channels, filling the space to the underside of the bays and extending the length of the vehicle.

The roof structure consists of two cant-rails and two purlins; the lower curvature is covered with corrugated sheet and the top section with a smooth sheet $\frac{1}{8}$ in. thick, to which the ventilators are attached. All these sheets are spot-welded. Each cantrail is formed of a pressing and two sheets serving as longitudinal gussets, the outer one being reinforced with a moulding. All cantrail components are $\frac{1}{8}$ in. thick.



Dimensions and interior layout of a composite coach in the new series of vehicles of stainless steel construction for the French National Railways

weighs about 3 tons less than one of standard construction. A composite stainless steel coach of the new series weighs 33 tons.

The present order for 36 coaches comprises the following types:—

- (1) Eight first class coaches, six with eight compartments and two with six passenger and one brake compartments.
- (2) Ten first and second class composite coaches having three first class and five second class compartments.
- (3) Eighteen second class coaches, sixteen with eight compartments and two with five compartments and a bar.

Deliveries of these vehicles began in June, 1952, and the first were placed in service on the "Golden Arrow" between Paris and Calais. Later units will be divided between Paris-Bordeaux and Paris-Strasbourg services. The second class coaches with bar compartment

the body that is not made entirely of stainless steel. At each end there is a standard type of headstock structure in E.C.S. steel, with which the bogie pivot seating is incorporated. It is riveted at the sides to the 18-8 steel side-sills which run the length of the coach between the entrance doors. This is one of the rare instances in which it has been necessary to use a method of attachment other than resistance welding, because of the dissimilarity of the metals. The other elements in the underframe are cross-members, a longitudinal stiffener, and flooring.

Each underframe side-sill is spot-welded to the body sill which forms the lower part of the side walls. The latter are made up of a number of panels occupying the spaces between successive bays and connected by various longitudinal members. These comprise (1) a lower gusset running the length of the coach and spot-welded to the body side-sill. A continuous moulding strengthens

The end bulkheads are of 18-8 steel, $\frac{1}{8}$ in. thick, with vertical and horizontal stiffening members. They are supported from the headstock structures and from a system of stiffeners built into the end roof sections. In each there is an opening, suitably strengthened, for the inter-communication door. Apart from these bulkheads, which are intentionally given an extra margin of strength, the thickness of the component parts of the body ranges from $\frac{1}{8}$ in. for the corrugated sheet in the roof to $\frac{3}{8}$ in. for the underframe side-sill. These dimensions, by reason of the characteristics of 18-8 steel, are less than in a standard vehicle, where the roof sheeting is $\frac{1}{8}$ in. thick, the cantrails $\frac{1}{8}$ or $\frac{3}{8}$ in., and the underframe side-sill $\frac{1}{8}$ in. thick.

Various applications of Budd welding procedures are used in the construction of these coaches. The roof covering sheets, for example, are welded in an automatic appliance with a head that advances in step with the passage of

welding current and effects two parallel rows of spot welds. Another machine welds the covering to the roof framework and has similar automatic features, while being adapted to work on curved surfaces by special guiding arrangements which maintain the electrodes at a constant angle to the pieces being welded.

The coaches have fluorescent lighting operating on a 3-phase, 220-volt, 80-cycle supply obtained by conversion from the standard d.c. electrical source. Switches in the compartments give passengers control of the lighting. When a compartment lamp is switched off, two small neon lights come into action automatically but these also can be extinguished by passengers.

Particular attention has been given to seating, the backs being specially shaped in the first class compartments, which also have individual head- and arm-rests. Each seat can be pulled forward slightly if desired to provide greater depth from front to back. The compartment dimensions have enabled a seat 19½ in. deep to be provided in the second class.

Inside the compartments the panels up to the waistline have a mahogany finish in the first class and walnut in the second. Textile materials with a polyvinyl chloride base are used for the upper wall covering. A pile carpet is laid in the first class compartments. In the second class and corridors the floor



Individual seat cushions, arm-rests and head-rests in a first class compartment



Second class compartment interior, showing the deep seats, folding tables under window, and fluorescent lighting fitting

Warmed air is delivered inside the vehicles by means of a fan which effects approximately ten complete changes of the internal air every hour. Alternative electrical or steam systems for heating the air are installed. The electrical apparatus operates at 1,500 volts from d.c. or 50-cycle a.c. supply.

A 72-volt dynamo with output regulator and a capacity of 6 kW. provides the source of power for lighting and a number of elements of the heating system.

Internal Furnishing

In general the interior arrangement of the coaches is similar to that of other S.N.C.F. main-line stock, but certain improvements have been made in line with policy for the future. For example, the first and second class compartments are of the same internal dimensions, to facilitate a possible eventual reduction in the number of classes on express trains to two—one with six and one with eight seats per compartment. The width of the compartments between seat backs is 6 ft. 11½ in., a notable improvement on the 6 ft. 2½ in. of the 1946 second class

covering is linoleum. Extensive use is made of stainless steel for internal fittings.

Folding tables are fitted under the windows in both classes. When not in use they are recessed into the compartment walls and are then practically unnoticeable.

The windows consist of a fixed lower and movable upper pane, and are installed as ready-assembled units that can be replaced easily when necessary without taking a coach out of service. Construction of the coach body has been simplified by the fact that it is unnecessary to accommodate part of a lowered pane within the side walls.



Photo.]

[Lucien Viguer

First and second class coaches and the new stainless steel stock in service

Lifting Barriers in New South Wales

Standardisation of boom gate type



The 31-ft. boom gates with flashing light highway signal at Mt. Keira, New South Wales Government Railways

LIFTING Barriers or "boom gates," on similar lines to those installed experimentally at a crossing at Warhill, Yorkshire, described in our November 28, 1952, issue, have been in use in New South Wales since 1913. We have received the following details of experience with these installations from Mr. P. J. Fahey, Signal & Telegraph Engineer, New South Wales Government Railways.

Boom gates have been adopted as the standard form for interlocked gates in New South Wales, 33 installations now being in use, including those which are either mechanically or power operated.

Following the practice with swing gates, "capstan" type operating wheels were used at first but it was found that an improved driving mechanism was necessary, not only to reduce physical effort by the signalman but also to speed up the operation of the gates.

A multi-start screw drive was designed, incorporating two hand driving wheels mounted on a frame at one end of the standard interlocking machine and suitably interlocked with the other levers. The driving links on the gates are so arranged that they form a lock to prevent the boom being lifted when horizontal. Where either road or rail traffic, or both, are heavy, power operation has been adopted, and it is necessary for the signalman merely to turn a switch for each gate movement.

At one stage of development, all-steel construction for boom gates was used but these have been replaced by composite booms, consisting of short steel channel sections to which are

bolted softwood timber flitches to form the main portion of the barrier. This was the result of an experience where a steel boom, which had been run through by a heavy motor lorry, was so badly bent that it fouled the railway. There were no local facilities available to straighten the boom or remove it immediately. All road and rail traffic

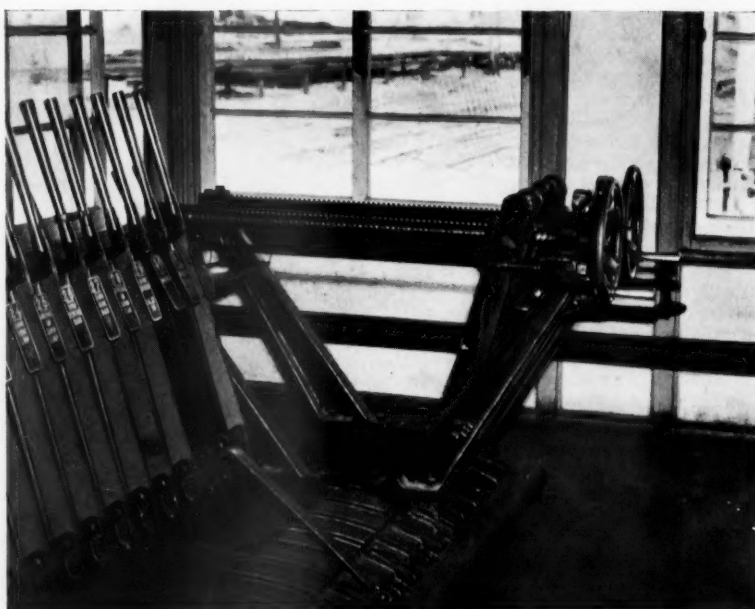
was held up until the District Officer was able to persuade a lorry driver to attach his vehicle to the end of the bent boom and move it sufficiently to enable road and rail traffic to proceed.

Boom gates of this type of construction up to 31 ft. in length are in common use in New South Wales and at some places booms 36 ft. long are operating satisfactorily. The pedestals consist of two vertical channel sections, braced on one side and widened at the base, to provide for the holding down bolts and to resist the overturning effect. Self-aligning bearings are used, which have been found a marked improvement over the ordinary type of sleeve bearing.

With respect to highway warning signals, it is the practice to provide a flashing red light to warn drivers of road vehicles approaching the crossing that the gates are about to be lowered. The red light commences to flash when the releasing lever in the interlocking machine is pulled over prior to the operation of the gates and continues to flash whilst the gates are down to protect the crossing.

The whole of the gates and operating mechanisms have been designed by the staff of the Signal & Telegraph Engineer's branch and manufactured in the departmental workshops.

C. MACKECHNIE JARVIS AND PARTNERS; CHANGE OF ADDRESS. — Messrs. C. Mackechnie Jarvis and Partners, consulting engineers, have moved to 53, Victoria Street, Westminster, London, S.W.11, telephone, Abbey 4751.



Cast frame type control unit for mechanical boom gates

Tubular Steel Structures for Overhead Lines

Potential saving in cost where numerous tracks have to be spanned

INVESTIGATIONS have been made at the instigation of British Railways into the possible use of welded structures for supporting the overhead line equipment of electric railways in order to effect economies. They were mentioned in the course of a paper read recently before the Institution of Electrical Engineers by Messrs. O. J. Crompton and G. A. Wallace on "Economic Aspects of Overhead Equipment for Railway Electrification," which referred particularly to the 1,500-volt d.c. system installed on the Liverpool Street-Shenfield line and now being erected on the Manchester-Sheffield section.

As a result of these developments, a test was recently carried out in the presence of British Railways' representatives at the Painter Brothers testing plant at Hereford of a prototype structure designed and manufactured at Newport Works by Tubewrights Limited (a subsidiary of Stewarts and Lloyds) to British Railways' specification, so as to afford a comparison with a corresponding structure in ordinary standard steel sections tested in 1938 under the same conditions.

The tests were completely successful in that not only did the structure withstand 2.5 times the design loads, but also an additional load applied to one mast, for which provision had not been made in the design. The illustration shows the structure mounted on the test bed. This type of structure is an anchor structure spanning two tracks. The overhead equipment is compound catenary construction consisting of a main copper catenary, 37/104 in. carrying a 19/112 in. copper auxiliary catenary, which in turn supports the 0.3 sq. in. solid grooved cadmium copper contact wire.

This structure is designed to take the out-of-balance loads, in a direction parallel with the tracks, of one broken equipment. At the same time it has to withstand the transverse loads due to a 50 m.p.h. wind on the wires with the supporting catenary cables covered with $\frac{3}{8}$ in. radial thickness of ice. The tensions in the wires are those produced by these same conditions, namely a 50 m.p.h. wind at 20° F. on ice-loaded wires, and are considerable, being 5,270 lb. in the main catenary, 4,650 lb. in the contact wire and 2,557 lb. in the auxiliary catenary.

The bridge member consists of two $3\frac{1}{2}$ in. \times 5 s.w.g. tubes forming the top boom, and two 4 in. \times 5 s.w.g. tubes for the bottom boom. These tubes are 1 ft. 3 in. apart and are welded together by diagonal tubular bracing consisting of $1\frac{1}{2}$ in. \times 8 s.w.g. tubing. Vertically the depth of the bridge is 6 ft. 6 in., this depth being necessitated by the vertical distance between the main catenary and the contact wire. In this direction the top and bottom booms are welded

together by diagonal tube bracing, making a strong and rigid box girder. End posts of $4\frac{1}{4}$ \times $\frac{1}{4}$ in. tube are provided with flanges which are bolted to the tops of the masts.

The masts which require to take the direct compression and tension produced by the longitudinal loads are also subjected to bending produced by the

applied by means of scale pans and weights attached to cables and pulley blocks for the smaller transverse and vertical loads, and through 10-ton dynamometers for the heavy loads. Loads were applied in stages up to 1.5 times working load, at which point all loads were released and any small permanent set recorded. This amounted



Prototype tubular structure for supporting overhead line equipment at Painter Brothers testing plant, Hereford

transverse wind loads on the wires and on the structure itself. They consist of two tubes $6\frac{5}{8}$ in. dia \times 5 s.w.g., 1 ft. 3 in. apart at the top and 6 ft. 6 in. at the base. They are 18 ft. 6 in. high and are connected by a common flange plate at the top to which the bridge member is bolted by eight $1\frac{1}{2}$ in. dia. bolts. At the bottom, each tube is provided with a welded-up foot which is bolted down to a concrete foundation by means of clamping bars embracing pairs of four bolts per leg. The masts are welded together by $1\frac{1}{2}$ in. \times 8 s.w.g. tubular bracing, thus forming an "A" frame.

For test purposes the structure was mounted on two heavy R.S.J.s, which were themselves bolted down to the testing plant foundations. Loads were

to $1\frac{1}{2}$ in. at the top of the masts in the transverse direction, there being none at all longitudinally.

Loads were then re-applied up to 2.5 times the working load, which the structure withstood without failure. An additional load of 2,400 lb. was then applied to one mast, representing a terminated earth wire, and the structure withstood 2.5 times this load without failure.

All longitudinal loads were then increased and very soon the bridge top and bottom booms failed by buckling at the point of load application. There were no weld failures. This is of some importance, since the use of all-welded tubular construction involving welds in

(Continued on page 156)

A Heavy-Duty Boring and Turning Mill

Contour turning solid rolling stock wheels through electronic control of profile attachment

A HEAVY-DUTY turning and boring mill for machining railway rolling stock solid wheels has been designed and manufactured by George Richards & Co. Ltd. A feature of the design is the provision of an electronic contouring mechanism which enables the contour turning to be carried out with complete accuracy on a repetition basis.

The machine is of rigid construction. The column is cast integral with the

sponds to the profile of the wheel, and is mounted on a bar attached to the machine.

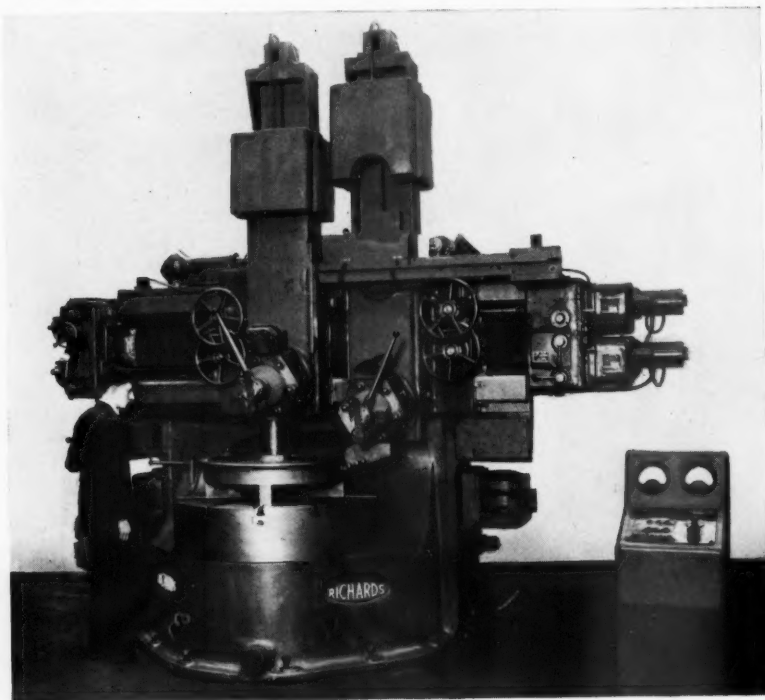
The tracing head is so designed that pressure in any direction moves an electro-magnetic stylus in the instrument which produces signals corresponding to the direction of movement of the tool, either in the vertical or horizontal direction. Movements of the turret head are produced by two d.c. motors geared to the cross and longitudinal feed screws.

thrust during wheel boring is taken up by the cross-slide, the head overlaps the centre-line of the machine, enabling the boring to be carried out on the right-hand side of the bore. Finish boring is carried out by reamer; the setting of the head for the operation is done by feeler blocks.

The machine is driven by a 60 h.p. 2 to 1 variable speed d.c. motor, through a gearbox having nine mechanical changes. The drive to the table is through spiral bevel gear and pinion. An infinitely variable speed range from 2.61 to 106.87 r.p.m. is thus obtained, speed changes being made by levers and push buttons. Controls are duplicated on each side of the machine.

Rapid power traverse to both heads is by a motor situated on top of each column. Push-buttons give reverse motion to the right-hand head, and one directional motion to the left-hand head, the reverse to the latter being obtained by plate clutches in the feedbox. Lubrication is provided by means of a rotary, geared pump driven by a fractional h.p. motor supplying oil to a pressure chamber in the gearbox. This pump also supplies oil to the several oilboxes by which means, oil is fed to the boring heads, slides and so on.

Spray lubrication is adopted for the main spiral bevel gears; an oil pressure gauge is provided. The electronic equipment and other electrical controls are housed in a cabinet conveniently placed on the right-hand side of the machine. All the electrical equipment was supplied by Metropolitan-Vickers Electrical Co. Ltd.



Richards boring and turning mill showing its electronic control mechanism

base, and the design provides the rigidity necessary to make full use of negative rake tungsten carbide tools. A fixed cross-slide is attached to the columns carrying two separate hexagonal turret heads, which are revolved and indexed through a gear lever. A second lever releases and engages the locating pin, and locks the turret after indexing. One head is arranged for boring the wheels and machining the annular recesses, and the other for contour machining.

Electronic Control

As will be seen from the illustration the right-hand head is fitted with a copying attachment for machining the contour of the wheel. Automatic contour is achieved by this head which is electronically controlled through a stylus tracing head mounted on the down slide. A roller on the end of the stylus follows the contour of the template which corre-

sponds to the profile of the wheel, and is mounted on a bar attached to the machine. The tracing head is so designed that pressure in any direction moves an electro-magnetic stylus in the instrument which produces signals corresponding to the direction of movement of the tool, either in the vertical or horizontal direction. Movements of the turret head are produced by two d.c. motors geared to the cross and longitudinal feed screws.

Feeds and Speeds

The continuous variability of feed-motor speeds provides a smooth movement of the cutting tool resulting in a high degree of accuracy and finish, and gives complete independence from such variables as friction and load. The diameter of the roller on the stylus is the same as the cutting tool, the actual cutting edge of which varies during the machining of the wheel profile.

The left-hand head has a separate motor which drives a gearbox giving a feed range of 0.506 to 3.95 in. a minute. To ensure that the full cutting

tension is a new feature in British overhead line construction.

The weight of the structure was approximately 1.7 tons, as against 2.95 tons for a normal lattice structure. Although the price per ton is higher than for bolted and riveted construction, the saving in weight can effect a saving in cost of 25-30 per cent. This saving in cost becomes more marked in the case of large structures required in sidings and station areas where a considerable number of tracks has to be spanned and equipped.

Other advantages of tubular construction are reduced resistance to wind, easy painting of the round surfaces and a reduced tendency to collect soot and dirt from steam locomotives, which thus lengthens the life of the structures and also the periods of maintenance repainting. As a result of this test two or three tubular structures are to be installed for trial purposes on the Manchester-Sheffield electrification.

Tubular Steel Structures for Overhead Lines

(Concluded from page 155)

Speed Indicating on Locomotives

An electrical speed and distance indicating and recording machine

INCREASING use is being made of speed indicating and recording equipment on many of the world's railways. Especially is this so on electric and diesel-electric locomotives now in service and coming into service and there are indications that the time is not far distant when it will be standard practice on steam locomotives.

Accurate and reliable indication of speed is as essential in efficient railway operation as in any other form of transport. It facilitates precise adherence to timetables and where a recorder is fitted, provides a means of checking train speeds over restricted sections. An integrating meter is usually employed for mileage counting and totals the mileage run between overhauls without the need of keeping a log.

The accompanying illustrations which show the speed indicating and recording equipment fitted to one of the new Brush-Bagnall diesel-electric locomotives for Ceylon demonstrates how modern electrical technique has been applied to reduce the number of moving parts to a minimum and to combine accuracy with robustness, simplicity and extreme reliability. The equipment is supplied by Elliott Brothers (London), Limited, and consists of an a.c. tachometer generator mounted on the bogie axlebox and directly coupled to the axle shaft, supplying current proportional to train speed via a wheel diameter compensator to speed indicators in both driving cabs and a graphic speed recorder within the locomotive. Electrical impulses corresponding to distance travelled operate a mileage counter of the cyclometer type.

Since all the connections between the various components of the system are electrical, there is complete flexibility in the layout of equipment, a matter of some importance in the restricted space

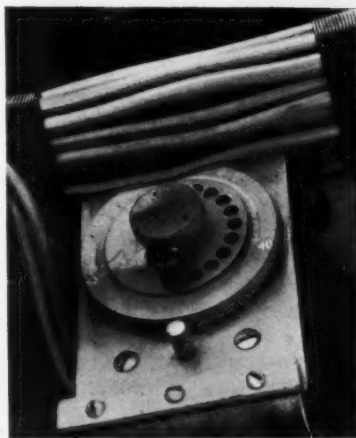
of a modern high-power locomotive. External wiring is run in heavily armoured hose and fitted with heavy plug and socket connectors with appropriate locking devices to ensure the utmost reliability, at the same time rendering the generator easily removable for servicing.

Tachometer Generator

This is of the Elliott MK IVA type embodying distance-counting mechanism. It has been designed to withstand severe vibration, has a dust-proof and waterproof housing and effective locking of all screws is provided. No chain, flexible shaft or step-up gearbox is required, the coupling consisting of a slotted hardened plate attached to the generator shaft and engaging a large diameter pin on the end of the axle.

The generator is of the 12-pole inductor a.c. type giving high output over a wide range of operational speeds. The stator is of silicon steel laminations with coils positively located and specially treated for effective protection against extreme climatic conditions. A cobalt steel rotor is used, the poles being magnetised north and south alternatively. An important feature is that the rotor magnet is aged for stability and during manufacture is demagnetised to an extent that enables the rotor to be withdrawn from the generator for servicing without the necessity for remagnetising. Temperature compensation is provided by means of a magnetic shunt. A high tensile steel rotor shaft is used carried on grease-packed ball bearings. The tachometer generator attachment to the axlebox is by a clamping ring.

To compensate for the reduction in tyre diameter due to re-turning, a specially designed adjustable resistor is

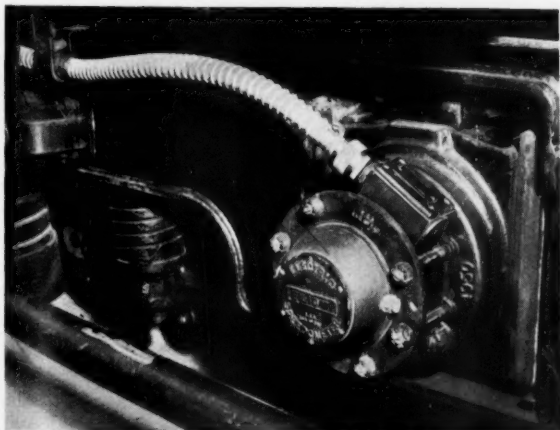


The wheel diameter compensator

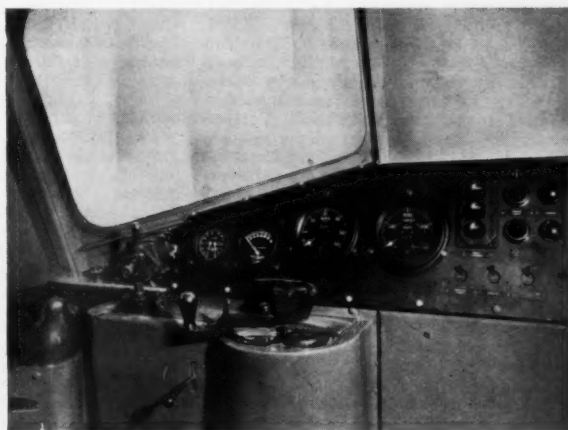
included in the system between the generator, indicator, and recorder. The setting of the compensator unit is carried out by turning a knob which is provided with a reference line moving over a calibrated scale marked in terms of wheel diameter. It is necessary to ensure that the reference line coincides with the actual wheel diameter, an operation carried out during locomotive overhaul.

Mounting Arrangements

The unit can be sealed to prevent interference while in service, and is designed for mounting on the instruments panel or on a bulkhead in the driver's compartment. The scale is graduated in quarters of an inch of wheel diameter. Elliott generators are calibrated to a common standard and



Elliott tachometer generator shown mounted on the bogie axlebox



Driver's instrument panel of the Ceylon Government Railways diesel-electric locomotive



The graphic speed recorder

are therefore interchangeable both electrically and mechanically. When the equipment includes a mileage counter as is the case with the Ceylon Government Railway locomotive, MK IVA, the generator movement has a geared-down contact-making device, driven from the rotor shaft. The reduction gear in the contact breaker is such as to provide one impulse per mile.

Speed Indicator

This instrument is a development of the Elliott range of moving coil instruments which are extensively used for industrial purposes, and embodies a

metal rectifier. The magnetic system gives exceptionally high field strength and consequently high torque coupled with adequate damping, so that the instrument, though responsive, is dead-beat. The use of this instrument and a 12-pole generator eliminates pointer fluctuation at low track speeds. The instrument is housed in a heavy cast case which effectively screens the movement from stray magnetic fields which may emanate from the locomotive control gear, and provision is made for illumination from the back of the panel. Alternatively the instrument may be supplied with a fluorised or luminous dial.

The graphic speed recorder is a development of the industrial type of electrical recording instrument and has been specially designed for use on locomotives. The overall dimensions are very small and by the use of a novel magnetic system the instrument has exceptionally high sensitivity. It is of the permanent magnet moving-coil type with metal rectifier and gives a clear ink record on a continuous chart with a working width of 3 in. The moving element is carried in jewelled bearings. Eddy current damping is used, making the instrument dead-beat and gives a clear recording during high speed running. The magnetic system is fully screened against the influence of external magnetic fields.

Chart drive is by means of an eight-day spring clock movement with temperature compensated escapement. To prevent chart wastage a magnetic clutch can be incorporated in the chart drive to stop the drive when the locomotive is out of service. An interesting alternative chart drive is an impulse

motor which drives the chart at a speed proportional to train speed and gives a record of train speed on a mileage basis instead of on a time basis as is the case with the clockwork drive previously described. An exclusive feature claimed is the provision of a two speed and neutral device, operated by a thumb catch accessible on opening the case.

Slow chart speed, which is normally used is one inch an hour. With the catch in neutral, the chart drive is completely free and the alternative position of the catch gives a chart speed of six inches an hour. The chart and drive mechanism swings clear of the instrument after releasing a catch, which action lifts the recording pen clear to prevent damage.

The recorder pen arm is easily detachable for cleaning, and when replaced is automatically and positively located in "V" grooves. Ink supply is by syphon pen from a large capacity non-spilling trough, easily removable for cleaning. For the purpose of efficient servicing a high degree of standardisation of components and assemblies has been achieved; chart drive assemblies of all instruments are interchangeable.

Among the applications of these speed indicators are in locomotives built by the North British Locomotive Co. Ltd. for the Estoril Electric Railway, Ceylon Government Railway, South African Railways, and the Mauritius Railways; Brush Bagnall Traction Limited, for Ceylon Government Railway, and the English Electric Co. Ltd., for the Victorian Government Railways, and Queensland Government Railways.

RELIEF PARCELS FOR FLOOD VICTIMS.—British Railways and British Road Services announced last Tuesday that during the next fortnight they would accept for free conveyance packages of clothing and bedding for the relief of victims of the floods in Eastern and South Eastern England. Packages should be marked "For flood relief," and may be addressed to any of the following: Women's Voluntary Services, Eaton Square, London, S.W.1; British Red Cross Stores, Lewisham, London, S.E.13; St. John Ambulance & British Red Cross Headquarters, Cambridge or Nottingham. Parcels may be handed in at any British Railways station or British Road Services depot. Those for despatch by passenger train must not weigh more than 56 lb., but heavier packages may be sent by goods train or by road.

EIGHT-POWER TALKS ON EUROPEAN TRANSPORT.—The Ministers of Transport of Austria, Belgium, France, Italy, Luxembourg, the Netherlands, Switzerland, and Western Germany announced on January 31 that a three-day conference in Paris had been a "complete success," and that similar meetings would be held in the future as need arose. Points of agreement included, in railway matters, extension of the Franco-(Western) German wagon pool to the other six countries and up to 200,000 wagons (double its present size) in the im-

mediate future; and standardization of equipment, especially in the sphere of electrification, with particular attention to the development of "multi-current" electric locomotives able to run on the different national systems. Nineteen international trunk roads were defined for co-ordinated development. A commission is to be set up to study all outstanding waterway construction projects. It was also announced that the conference had been the occasion for the conclusion of an agreement between France and Italy, for construction of the proposed road tunnel under Mont Blanc.

RUBBER SALES REORGANISATION.—Brynmawr Rubber Limited is reorganising its subsidiary selling company, Brynmawr Rubber (Sales) Limited, by mutual agreement between the boards of the two companies. Until further notice, all correspondence and inquiries concerning Brynmawr products should be addressed to Brynmawr Rubber (Sales) Limited at Brynmawr, Breconshire. Brynmawr Rubber (Sales) Limited has a mutually acceptable understanding with Major H. L. Anderson and Mr. T. T. Ottowell, the retiring Directors of Brynmawr Rubber (Sales) Limited, who were the Partners in the Hemisphere Rubber Company. They are resuscitating their business and retaining their office at 70, Finsbury Pavement, London, E.C.2, from which address they will operate under the name Hemisphere Rubber Co. Ltd. Corre-

spondence and inquiries for the Hemisphere Rubber Co. Ltd. should be sent to that address.

G.N.R.(I.) DAY TOURS.—A booklet giving details of road and rail day tours to be run this season by the Great Northern Railway is being distributed in Ireland and abroad. Among eleven tours from Dublin is one to the Hill of Tara, where tourists will be able to inspect the excavations being made there. There are nine tours from Bundoran, and five each from Drogheda, Dundalk, Sligo, and Blackrock (Co. Louth). The G.N.R.(I.) is giving special attention to An Tostal, and a folder has been produced setting out a special series of tours arranged for the festival.

TIME RECOVERY BY "MISTRAL" EXPRESS, S.N.C.F.—A remarkable demonstration of the capacity of the latest Co-Co locomotives of the French National Railways was given on December 17 last, when No. 7101 of that series ran from Lyons to Paris with the "Mistral" express in 3 hr. 52 min., at an average speed of 82.6 m.p.h. Although Lyon-Perrache was left 25 min. late, Paris was reached on time. The train consisted of eleven vehicles and weighed 546 tonnes. It is reported in *La Vie du Rail* that this high average was achieved without the limit of 87 m.p.h. being exceeded at any point.

RAILWAY NEWS SECTION

PERSONAL

Mr. George B. Howden, M.I.C.E., General Manager of the Great Northern Railway (Ireland) and of Coras Iompair Eireann, is to become Chairman of the Ulster Transport Authority in succession to Mr. J. Sydney Rogers.

Mr. C. J. H. Schoombie, Chairman, South African Railways & Harbours, has been appointed Assistant General Manager (Staff). He has been succeeded by Mr. H. J. C. Bosman, System Manager.

Mr. D. J. J. du Plessis, System Manager, South African Railways, Pretoria, has retired with effect from January 24, 1953.

The following are recent promotions in the Engineering Department of East African Railways & Harbours:—

Mr. C. T. Henfrey, A.M.I.C.E., Senior District Engineer to Works Engineer, with effect from May 1, 1952.

Mr. J. M. Kesson, B.Sc.(Hons.), A.M.I.C.E., Senior District Engineer, to be Construction Engineer, Harbour Development, with effect from November 1, 1952.

Mr. P. H. Hicks, B.Sc.(Eng.), A.M.I.C.E., A.C.G.I., District Engineer, to be Senior District Engineer, with effect from December 1, 1952.

Mr. C. G. H. Rodgers, B.A.(Hons.) (Cantab.), A.M.I.C.E., District Engineer, to be Senior District Engineer, with effect from December 1, 1952.

Mr. R. H. Leadbeater, B.Sc., A.M.I.C.E., Assistant Engineer, to be District Engineer, with effect from December 1, 1952.

Mr. C. L. Keegan, B.A.(I), A.M.I.C.E., Assistant Engineer, to be District Engineer, with effect from December 1, 1952.

Mr. Joseph S. McGowan, Director, Organisation & Agriculture Department, Canadian National Railways, was elected President of the Canadian Railway Club at its 49th Annual Meeting on January 12. He succeeds Mr. John Eaton, General Purchasing Agent of the C.P.R.

Mr. John P. Coakley, Director, Inland Water Transport Division, Defence Transport Administration, U.S.A., has resigned with effect from January 17, 1953, to take up the appointment of Eastern Sales Manager, Dravo Corporation, New York City. Mr. William J. Gregg will become Acting Director, Inland Water Transport Division.

An illuminated address commemorating his election as an Honorary Member of the Road Haulage Association was presented to Mr. Frank F. Fowler at a meeting of the Association's National Council on January 29. Election as Honorary Member followed Mr. Fowler's two years of office as National Chairman and recognises over 20 years' service to road haulage.

We regret to record the death, on January 30, at the age of 59, of Brigadier James Storar, C.B.E., M.I.Mech.E., Chairman of Vulcan Foundry Limited, and Robert Stephenson & Hawthorns Limited, and Managing Director of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. He was a Director of a number of other companies, including the Bolivia Railway Company, the Central Africa Railway Co. Ltd., the Chilean Northern Railway Co. Ltd., the

business visits to Egypt, South Africa, Rhodesia, Nyasaland, Brazil, Peru, Chile, Bolivia, Argentina, and the U.S.A.

Mr. L. A. Stacey, Service & District Engineer, General Motors Diesel Limited, has been appointed Service Manager, replacing Mr. T. N. Snyder, who is being transferred to the Cleveland Diesel Engine Division of General Motors Corporation at Cleveland, Ohio. This appointment is in accordance with the policy of replacing U.S. personnel with Canadians. Out of the fifteen original key personnel from the United States, who launched General Motors Diesel about three years ago, only five are with the company today.

Mr. James M. White has been elected Vice-President in charge of manufacturing of the American Car & Foundry Company in succession to Mr. Robert W. Ward who has retired after 42 years of service.

The following appointments have been announced by the American Locomotive Company:—

Mr. A. T. Lawrance as Regional Manager in charge of sales offices at Houston, Tulsa, Los Angeles, and Beaumont, Texas. These duties are additional to his present assignment as Plant Manager of the Beaumont Iron Works, an Alco subsidiary.

Mr. Paul W. Geisler as Regional Manager in charge of Alco Products sales work at district offices located at New York, Dunkirk, N.Y., and Chicago.

Mr. Walter E. Beline has replaced Mr. Geisler as District Manager for the division at New York.

Mr. L. W. Eger as Manager, Sales-Service, for Alco Products Division at Schenectady.

Mr. H. D. Bierau as Director of Compensation & Safety, and Mr. G. Y. Taylor as Personnel Director. Both will have headquarters at Schenectady.

Mr. W. J. Brockhurst as Manager of Material Control and Mr. K. C. Young as Assistant Manager of Material Control with headquarters at Schenectady.

Mr. J. T. Lewis as Manager of Quality Control.

Mr. Mayo S. Silvey as Assistant to Vice-President (Manufacturing).

Mr. C. L. Sheen as Manager, Factory Rebuild Service, at Auburn, and Mr. R. E. Breen as Assistant Manager, Factory Rebuild Service.

We regret to record the death on January 20 of Mr. F. A. Holmes, who was Assistant Chief of Police, Southern Railway, from June, 1925, until his retirement at the end of 1947. He entered the service of the L. & S.W.R. in 1903, and later became Chief Clerk at Waterloo. Mr. Holmes was awarded the M.B.E. in the 1948 New Year Honours List for his services during the second world war. He was a keen sportsman, and at one time a judge of the Amateur Boxing Association.



The late Brigadier James Storar
Chairman, Vulcan Foundry Limited
and Robert Stephenson & Hawthorns Limited

Dorada Railway Co. Ltd., the Drewry Car Co. Ltd., Nyasaland Railways Limited, and the Trans-Zambesia Railway Co. Ltd. Brigadier Storar received his early training in locomotive engineering with Robert Stephenson & Hawthorns at Darlington. After serving in the 1914-18 war as a company commander in the Northumberland Fusiliers, and later in the Railway Operating Division, R.E., he was appointed in 1919 as a District Locomotive Superintendent on the Rhodesia Railways. In 1923 he was appointed Chief Mechanical Engineer of the Nyasaland and Trans-Zambesia Railways in charge of rolling stock and steamship services, and during the absence of the General Manager acted in his stead. He rejoined the army in the recent war as a Lt.-Colonel (O.M.E. 1st Class), and in 1941 was promoted Colonel. In 1942 he was transferred to the War Office as an Assistant Director of Mechanical Engineering, and in 1943 was appointed a Deputy-Director as Brigadier. Subsequent to his release from the army in 1946 he paid



Mr. George Dodson-Wells

Appointed Commercial Advertisement Officer,
British Transport Commission



Mr. T. Hatto

Assistant Chief Solicitor,
Euston Station, 1951-1953



Mr. E. A. Boothroyd

Appointed Assistant Chief Solicitor, Conveyancing
Division, Euston Station

Mr. George Dodson-Wells, M.B.E., M.Inst.T., Chief Public Relations Officer, London Transport Executive, who, as recorded in our January 30 issue, has been appointed Commercial Advertisement Officer, British Transport Commission, entered the journalistic profession in 1926 as a reporter on the *Newark Herald*. Three years later he went to the *Derby Evening Telegraph* where, after a few months reporting, he became a sub-editor. He went to Paris in 1930, and was for four years on the editorial staff of the Continental *Daily Mail*; he then returned to London to spend three years on the editorial staff of the *Daily Mail*. In 1937 Mr. Dodson-Wells joined the *Morning Post*, and moved to *The Daily Telegraph* when it absorbed the former. Early in 1939 he joined the Queen's Westminster Rifles, Territorial Army; he was called up on September 1, and was commissioned in the Middlesex Regiment in the next

year. He served as a major on the General Staff of General Sir Miles Dempsey's Second Army from its formation to disbandment, crossing the Channel on D-Day to take part in the Normandy landings. Before leaving the Army he edited a history of the Second Army's operations. After demobilisation in 1945 Mr. Dodson-Wells served for a year on the editorial staff of *Country Life*, and in October, 1946, he joined the London Passenger Transport Board as Public Relations Officer. In November, 1947, Mr. Dodson-Wells was appointed Acting Chief Public Relations & Publicity Officer, and, in June, 1948, his appointment was confirmed. Mr. Dodson-Wells' limited spare time is divided among many interests; he is a member of the House of Laity, Church Assembly and of the Executive Committee of the Church Information Board. He has been appointed Publicity Adviser to the Dean & Chapter of Westminster Abbey for

the £1,000,000 Appeal launched by Mr. Churchill on January 30 of this year. He is also Vice-President of the London Transport Art Group, and an exhibitor at the annual exhibition. He has for two years been President of the London Transport Railway Employees' Horticultural Society.

Mr. Thomas Hatto, LL.B.(Lond.), Assistant Chief Solicitor (Third Division), British Transport Commission Legal Service, who, as recorded in our January 30 issue, will retire on February 20, 1953, obtained honours in both the Intermediate and Final solicitors' examinations. He was formerly a partner with Messrs. Freke Palmer Romain & Romain. He joined the London Passenger Transport Board in September, 1934, to form the Conveyancing Department, and was appointed Solicitor (Conveyancing). He was transferred to the British Transport Com-



Mr. John Rigby

Appointed Legal Adviser, Docks & Inland
Waterways Executive



Mr. J. D. Tattersall

Appointed Assistant Solicitor,
Kings Cross



Mr. B. H. Clegg

Appointed Acting Solicitor, York, British
Transport Commission

mission Legal Service on its formation in January, 1950, as an Assistant Solicitor, and was appointed to his present office on January 1, 1951. Mr. Hatto was responsible for the conveyancing work in connection with the London Passenger Transport Board schemes for extending and improving the London Transport system, including the Central Line Extension to Ilford and, during the recent war, for the legal work associated with the London Aircraft Production Scheme.

Mr. E. A. Boothroyd, Legal Adviser to the Docks & Inland Waterways Executive, who, as announced in our January 30 issue, has been appointed Assistant Chief Solicitor of the Conveyancing Division, British Transport Commission Legal Service, at Euston Station, entered into articles of clerkship with Mr. I. Buchanan Pritchard, then Chief Legal Adviser, London & North Eastern Railway, in 1930. Mr. Boothroyd passed the Solicitors' Final Examination, and entered the service of the L.N.E.R. in 1934 as a solicitor. After two years in the Common Law and General Sections, Chief Legal Adviser's Office, Kings Cross, he took charge of the York office, serving the North Eastern Area, and gained considerable experience of the legal work arising from the dock undertakings at Hull, West Hartlepool, and Middlesbrough. In 1942, while continuing to supervise the work of the York office, he gave part-time assistance at the Head Office, then located at Hitchin, and dealt with the general legal work of the remaining port and shipping activities of the L.N.E.R. in England, at Grimsby, Immingham, Lowestoft and Harwich. Subsequently, he returned to full-time employment in the North Eastern Area at York, but continued to handle the Admiralty work of the L.N.E.R. system. When it was decided recently to reorganise and expand the York office to become the Regional Solicitor's Office, North-Eastern Region, British Railways, Mr. Boothroyd was appointed Assistant Regional Solicitor. In 1948 he was appointed Solicitor to the Docks & Inland Waterways Executive. When the British Transport Commission Legal Service was formed this post was redesignated Legal Adviser to the Docks & Inland Waterways Executive.

Mr. John Rigby, Assistant Solicitor, Litigation & Prosecutions Division, British Transport Commission Legal Service, who, as announced in our January 30 issue, has been appointed Legal Adviser to the Docks & Inland Waterways Executive, was born on February 7, 1907, and educated at Liverpool College. Mr. Rigby was articled in November, 1924, to Mr. J. A. Davies, of Batesons & Company, Liverpool. In 1930 he joined the staff of Batesons & Company as an Assistant Solicitor. He was engaged in general practice in Liverpool and the North-West of England in maritime, banking and commercial matters until December, 1935, when he left Liverpool to join the staff of the Divisional Solicitor to the London Midland & Scottish Railway Company at Hunt's Bank, Manchester, as a Solicitor Assistant, practising in criminal, county court and road traffic matters. Mr. Rigby was appointed Senior Common Law Solicitor in the Divisional Solicitor's Office at Manchester in September, 1938, charged with responsibility for the conduct of the general litigation in which the London Midland & Scottish Railway Company was involved in the Northern Division. His appointment as Assistant Divisional Solicitor at Manchester to the L.M.S.R.

followed in April, 1942, which position he occupied until January 1, 1950, when, on the formation of the British Transport Commission Legal Service, he was appointed Assistant Solicitor (Litigation & Prosecutions), and moved to London to take charge of the Kings Cross Office. Mr. Rigby is a Commissioner for Oaths.

Mr. J. D. Tattersall, Solicitor in charge of the York Office, British Transport Commission Legal Service, who, as announced in our January 30 issue, has been appointed Assistant Solicitor, Litigation & Prosecution Division, Kings Cross Station, joined the London & North Eastern Railway as an Assistant Solicitor in 1938, and devoted himself to the Conveyancing Section of the Chief Legal Adviser's Office. Shortly after the outbreak of war he joined the Army. He was captured at Salonika, and was a prisoner-of-war in Germany for four years. He resumed his work in the Conveyancing Section in September, 1945, and was appointed Assistant Solicitor (Conveyancing) in March, 1948. Mr. Tattersall was appointed to his present position in December, 1948.

Mr. B. H. Clegg, LL.B. (Hons.), Senior Solicitor Assistant, Parliamentary & General Division, British Transport Commission Legal Service, who, as stated in our January 30 issue, has been appointed Acting Solicitor in charge of the York Office, was born on September 20, 1911. He was educated at Brentwood School and Leeds University and articled with his uncle, Mr. H. E. Clegg of Craven & Clegg, Leeds. Mr. Clegg was admitted a solicitor in May, 1933, and worked for the next twelve months under Dr. Leslie Burgin in London, then Parliamentary Secretary to the Board of Trade. In 1934, Mr. Clegg joined Joynson-Hicks & Co. and, eighteen months later, he joined Thos. Tilling Limited as Assistant to the Legal Officer, a position he held for about four and a half years, leaving to join the London Passenger Transport Board. The outbreak of war occurring shortly afterwards, Mr. Clegg joined the Forces and was commissioned in the R.A.S.C., first serving on bridge operations in Italy and later on the staff in Italy and at home. He returned to the L.P.T.B. in 1946, and, when the British Transport Commission Legal Service was formed in 1950, he remained in the Solicitors Department of the new London Transport Executive.

With reference to the appointments among Metropolitan-Vickers' personnel recorded in our January 30 issue, those of Professor Willis Jackson and Mr. G. D. Harradine relate to Metropolitan-Vickers Electrical Co. Ltd.

We regret to record the death on January 29, at the age of 82, of Sir Leopold Savile, K.C.B., formerly Civil Engineer-in-Chief to the Admiralty. Sir Leopold Savile, who was a distinguished harbour and docks engineer, was born in 1870. He was a pupil of Sir John Wolfe Barry and Mr. H. M. Brunel from 1891 to 1896. He then spent two years in India as Assistant Engineer on the construction of the Southern Punjab Railway and the Bengal & North Western Railway. After work in connection with harbours in New South Wales and Singapore he became Resident Engineer on the extension of the Baker Street & Waterloo Railway. On retiring, in 1932, he joined the firm of Sir Alexander Gibb & Partners. He was a former President of the Institution of Civil Engineers.

We regret to record the death, at the age of 77, of Brigadier-General Magnus Mowat, C.B.E., M.I.C.E., M.I.Mech.E., for 18 years until 1938 Secretary of the Institution of Mechanical Engineers. His apprenticeship was served in the locomotive works of the North British Railway at Cowairs. He subsequently acted as Assistant Engineer in the construction of the Leicester section of the Great Central Railway extension to London. Later he went to India and served as Assistant Engineer on the Indian Midland Railway, returning in 1901/02 to become Chief Engineer to the Millwall Docks Company, which later was merged in the Port of London Authority.

Mr. H. F. Spencer, Managing Director, Richard Thomas & Baldwins Limited, and Mr. E. Julian Pode, Managing Director, Steel Company of Wales, are members of the newly-formed Richard Thomas Steel Company Management Board which will manage the above-named companies. Mr. E. H. Lever, while retaining the Joint Chairmanship of both concerns, has relinquished the Managing Directorship of Richard Thomas & Baldwins Limited. Mr. T. Griffiths, Joint Secretary of the latter company, and Secretary of the Board, will also be a member of the Management Board. The two companies retain their separate identities and their names remain unaltered.

Mr. H. H. Mardon, B.Sc. (Eng.), M.I.C.E., M.I.Mech.E., M.I.Struct.E., M.Am.S.C.E., Head of the Plant Engineering Division of the British Iron & Steel Research Association, is relinquishing his position to take up the appointment of Chief Project Engineer, Messrs. Ashmore, Benson, Pease & Company.

Dr. H. R. Mills, Ph.D., B.Sc. (Eng.), M.I.Mech.E., has been appointed Acting Head of the Division. He will remain head of the Division's Mechanical Engineering Section.

Mr. R. Anthony Beckett, Assistant Managing Director, Beckett Laycock & Watkinson Limited, left London Airport by Comet on January 23 on a business visit to India, Pakistan and Burma. His return journey will be broken at Cairo, where he will visit the Egyptian State Railways.

Mr. W. T. James, O.B.E., has resigned the Chairmanship of the Aldershot & District Traction Co. Ltd., while remaining a Director.

Mr. T. R. Williams, M.A., LL.B., has succeeded Mr. James as Chairman of the Company.

Mr. P. L. Osborn has been appointed a Director of Osborn-Mushet Tools Limited.

BRITISH STANDARD FOR ENGINE LUBRICATING OILS (H.D. TYPE).—The British Standards Institution has issued a standard (B.S. 1905:1952) for engine lubricating oils (H.D. type), laying down standards for the quality and performance of additive type oils for compression ignition engines. The specification is intended to safeguard the standard of supplies for those users who are convinced they secure benefits from a heavy-duty type of oil, and to define the nature of the oils for those who wish to establish their field of usefulness. Copies may be obtained from the British Standards Institution, Sales Branch, 24, Victoria Street, London, S.W.1, price 7s. 6d.

Permanent Way Institution Meeting and Conversazione

*Activity of sections in
organising meetings and visits*

The 69th annual winter meeting of the Permanent Way Institution was held at the Institution of Civil Engineers on January 31. The President, Lt.-Colonel H. B. Everard, was unable to be present due to his recent appointment with the Rhodesia Railways; accordingly the chair was occupied by Mr. J. C. L. Train, Past-President.

Some 200 members attended from all parts of the country, including Messrs. J. Taylor Thompson, A. S. Quartermaine, M. G. R. Smith (president-elect), and J. I. Campbell; also F. Q. den Hollander and J. A. L. Cuperus of the Netherlands Railways.

Before beginning the agenda, the Chairman read a message from the President, Lt.-Colonel Everard, expressing his regret at inability to attend owing to his having taken up duty at Bulawayo. He sent his good wishes for a successful meeting and the continued progress of the Institution.

A "Roll Call" of the Sections was then made and it was found that representatives were present from all the 25 sections in Great Britain, also members from Malaya and Holland.

The Secretary, Mr. H. Janes, then submitted a report of the activities of the Institution during 1952. In the course of this it was mentioned that the total number elected during the year was 470, made up of 23 Fellows, 63 Associate Fellows, 48 Members, 324 Associate Members, and 12 Students. During the year no fewer than 230 meetings and visits were held by home sections, an exceptionally good average. The Rhodesian section had formed sub-sections at Bulawayo, Gwelo, Salisbury, and Livingstone. Its membership exceeded 190.

Election of President

Mr. J. C. L. Train then proposed that Mr. M. G. R. Smith, Civil Engineer, Western Region, be elected President for 1953. As had been heard from Lt.-Colonel Everard's message commending Mr. Smith to them, he, Mr. Train, could only support the remarks. Mr. Smith had been a member of the Institution for many years, and their affairs would be in good hands. The proposal was seconded by Mr. J. A. R. Turner, Corresponding Secretary, London Section, who remarked that notwithstanding Mr. Smith's heavy official duties, he continued as a member of the Section Committee.

The election was agreed unanimously, and in replying Mr. Smith expressed his thanks for the honour paid him, and said he would do his best to follow the good example of previous holders of the office.

The following were elected as Vice-Presidents:—

For England, Mr. F. Wensley; Scotland, Mr. W. Paterson; Wales, Mr. W. T. Bowen; Ireland, Mr. C. Looney; Rhodesia, Mr. B. H. Johnson; Sudan, Mr. J. P. H. Steen.

The officers were re-elected, namely:—Secretary, Mr. H. Janes; Treasurer, Mr. F. Lawson; Editor, Mr. H. Ormiston; Auditors, Mr. Hector Hall and Mr. L. T. Stark.

After Members of the Council and various committees had been elected the Chair was handed over to the new President.

Lt.-Colonel R. H. Edwards then gave a resumé of the arrangements so far decided regarding the 1953 summer meeting and convention to be held in South Wales, with

headquarters at Cardiff, from May 16 to 21. Visits will be made to engineering works at Cardiff, Port Talbot, Swansea, and Newport, with trips to Porthcawl and the Wye Valley. During the week a reception by the Lord Mayor of Cardiff will take place in the City Hall.

A vote of thanks was accorded to the President and council of the Institution of Civil Engineers for permission to use rooms for the meeting.

This concluded the business agenda and the President requested Mr. F. Q. den Hollander, President, Netherlands Railways, to give an address on "The organisation and recent developments on the Netherlands Railways." In the course of his talk Mr. den Hollander explained in detail the financial organisation of the Netherlands Railways and said that originally there were 34 railway companies; one after another found they could not carry on and amalgamations took place so that in 1917 only two separate companies existed. The Government took over these two and formed the N.V. Nederlandsche Spoorwegen, with shareholders. They also owned subsidiary companies. The traffic was 60 per cent passenger and 40 per cent freight. There were some 2,000 miles of railway in an area of about 15,000 square miles, and 42 per cent of the system was electrified.

Mr. den Hollander spoke of the interdependence of the various parts which form a railway. It was true that the permanent way was the most important item. The permanent way was the road and without a road there could be no transport.

Before concluding Mr. den Hollander commented on the recent formation in the Netherlands of a Way & Works Association based on the same principles as the Permanent Way Institution.

The President said they all wished every success to the new Association and hoped there would be close co-operation between it and the P.W.I.

Mr. A. S. Quartermaine remarked that Mr. den Hollander's talk showed an extraordinary knowledge of the subject, the concise and clear manner in which the facts had been put forward was an example to all and on behalf of those present he most sincerely proposed a vote of thanks to Mr. den Hollander.

Mr. J. Taylor Thompson, in seconding the proposal, said that for Mr. den Hollander to address them for some 45 minutes without notes and in their own language was a remarkable performance.

Conversazione at R.E. Headquarters

The Council had decided that the meeting should be followed by a conversazione instead of the usual winter dinner. This highly successful function was held at the Railway Executive Headquarters, Marylebone Road, London, N.W.1, and was attended by more than 400 members and guests.

Among those present were:—

Mr. J. Gurney-Braithwaite, Parliamentary Secretary to the Minister of Transport; Lord Hurcomb, Chairman, British Transport Commission, and the Hon. Pamela Hurcomb; Lord Latham, Chairman, London Transport Executive; Sir Reginald Hill, Chairman, Docks & Inland Waterways Executive; Mr. John Elliot, Chairman, Railway Executive, and Mrs. Elliot; Mr. J. C. L. Train, Member, Railway Executive,

and former President of the Permanent Way Institution, and Mrs. Train; Mr. K. W. C. Grand, Chief Regional Officer, Western Region, and Mrs. Grand; Mr. J. Taylor Thompson, Civil Engineer, London Midland Region, and Mrs. Taylor Thompson; Mr. J. I. Campbell, Civil Engineer, Eastern Region; Mr. A. S. Quartermaine, former Chief Engineer, Western Region; Mr. F. Q. den Hollander, President, Netherlands Railways, and Mr. J. A. L. Cuperus, Director, Netherlands Railways Building Company.

In a short opening speech, the President expressed pleasure at seeing so many members present, and extended a welcome to the guests. The thanks of the Institution were due particularly to Mr. John Elliot for obtaining facilities for holding the conversazione at the Headquarters of the Railway Executive. The President announced with regret that the Minister of Transport, Mr. Alan Lennox-Boyd, was unable to be present. He also read a telegram conveying every good wish for a successful evening from Lt.-Colonel H. B. Everard, former Chief Officer, Engineering, Maintenance, the Railway Executive, and President of the Institution, and now General Manager of the Rhodesia Railways.

Lord Hurcomb congratulated Mr. Smith on becoming President of the Institution, and expressed gratification that Lt.-Colonel Everard had been appointed to one of the most important transport posts in the Commonwealth. From the outset, the British Transport Commission had emphasised the importance of opening careers freely to talent on its own system, irrespective of Executive, Region, or other administrative boundaries. It had gone further, and enjoined the duty of finding good men to fill transport appointments in the Commonwealth whenever this privilege was offered.

The growth of this democratically constituted Permanent Way Institution was itself evidence of the worth accorded to the human element in the work of maintaining and improving the railway track. Awards for the best-kept lengths of track and those on which the greatest improvements had been made, and the introduction since unification in 1948 of the standard system of length marking throughout British Railways, had fostered emulation, and improved track maintenance.

Arrears of renewal and of maintenance had had to be overtaken during a period when many essential materials—in particular, steel—were scarce. Nor were these difficulties yet over. It was hoped to have disposed of arrears and to resume the normal total of 1,750 miles of track renewal per annum by the end of 1954, and, if through shortage of steel, this was now too much to hope, we might, thanks to the support and help of Mr. Lennox-Boyd at least expect to realise this objective at the end of 1955. Despite handicaps, much progress had been achieved, helped by acceleration in mechanising some operations. Plans were in hand for acquiring a new and elaborate machine able to clean sidings and clear snow, and capable of carrying out the excavation associated with strengthening formations.

Mr. Train and our railway Civil Engineers were to be warmly congratulated on the fact that, in addition to effecting

so many developments in policy, the savings they had achieved on the permanent way side by more economic designs, by mechanisation, and by efficient organisation were now running at the rate of about £1½ million a year. It was most important to keep costs down, especially as we were looking not only for the highest standards of maintenance and adequate renewals, but towards affording some large new works of capital development.

The B.T.C. wanted to keep its staff interested in their work and informed of its progress. This need was being met by instructional booklets and travelling cinema vans. Five new films recently completed for this purpose by the Commission's Films Unit were being shown throughout the Regions, and a sixth would follow. In addition to evening classes, residential training courses for permanent way men were now being held, attended by staff from every Region. Apart from the actual knowledge thus acquired, much benefit resulted from the opportunities afforded for informal contacts and discussions between men and supervisors from different Regions. Those attending these courses who secured the highest marks could now receive the advantage of an educational tour on the Continent, a new and valuable stimulus to men qualified and willing to enlarge their knowledge of the methods of other countries.

Mr. J. Gurney-Braithwaite expressed the regret of the Minister of Transport and Lady Patricia Lennox-Boyd at their inability to be present, and added that he had deputised for the Minister at short notice. He had learned of the Permanent Way Institution shortly after he had gone to the Ministry of Transport, and now realised the extent to which we relied on this democratic body for the excellence of our railway track. It was a great achievement to have raised the membership from 129 in 1884 (the foundation year) to the present total of approximately 5,000. It was a great pleasure to him to have this opportunity of meeting so many of the members.

The entertainment provided during the evening included selections by the Laurence Reeve Quartet, songs by Miss Shirley Hichens and Mr. W. Jenkins, and items by Mr. H. W. F. Haywood. Several interesting films of railway and other subjects were shown, and there was an exhibition of railway models and examples of permanent way.

PARK ROYAL VEHICLES LIMITED.—The consolidated net profit of Park Royal Vehicles Limited and its subsidiaries for the year ended September 30, 1952, was £58,128, of which the subsidiary companies have retained £9,541. This leaves a balance of profit in the accounts of Park Royal Vehicles Limited of £48,587, to which is added the balance brought forward from the previous year of £293,526. After deducting the amount written off a trade investment, £6,427, the directors recommend that the balance of £335,686 be applied in dividends for the year, namely, preference stock (less tax) already paid, £10,500, and ordinary stock (first and final of 8 per cent free of tax) £38,000. The profit carried forward amounts to £287,186. The report states that the results for the year were badly affected by a strike at the Park Royal Works. Market conditions remain difficult as the immediate postwar demand for replacements had declined.

Storm over British Isles and North Sea

Channel packet sunk in gale; train services in East and S.E. interrupted by floods

During the gale which blew over the British Isles last weekend, British Railways m.v. *Princess Victoria*, gross tonnage 2,700, taking the morning sailing from Stranraer to Larne, foundered with heavy loss of life in the North Channel, off the coast of Co. Down, on the afternoon of January 31.

The Minister of Transport, Mr. Alan Lennox-Boyd, stated in the House of Commons on February 2 that the vessel sailed from Stranraer for Larne at 7.45 a.m. on the Saturday with 123 passengers and a crew of 49. An hour later a radio message stated that she was in difficulties and not under command. At this time she was reported to be in the mouth of Loch Ryan. Requests for help were sent out. The destroyer H.M.S. *Contest* and other vessels went to her assistance. Just before 1 o'clock the *Princess Victoria* wireless that she was on her beam ends and was about to be abandoned. At 2.50 p.m. Lloyd's received the message that wreckage, oil, lifeboats and rafts had been sighted five miles off the Copelands.

Mr. Lennox-Boyd paid a tribute to the work of the rescuers. A number of ships, aircraft, and lifeboats gave their help in most dangerous and trying circumstances, he added, and to those who manned them their most sincere thanks were extended. A formal investigation into the loss of the vessel would be held in public.

Heavy Loss of Life

Forty-four persons were reported as saved by the afternoon of February 3, namely 34 passengers and 10 crew; by that time the remaining 128 persons were presumed dead. Some survivors reported that shortly after the *Princess Victoria* left the comparatively sheltered waters of Loch Ryan, a heavy sea burst open the doors used for embarkation of road vehicles and flooded the car deck.

The *Princess Victoria* was built by William Denny & Bros. Ltd. in 1947.

The Queen earlier this week sent the following message to the Minister of Transport: "I and my husband were greatly distressed to hear of the sinking of the *Princess Victoria*. Will you please convey deepest sympathy to the relatives of those who lost their lives in this terrible disaster." Mr. Lennox-Boyd replied, thanking Her Majesty.

The contents of the Queen's message was communicated by Mr. Lennox-Boyd to Lord Hurcomb, Chairman of the British Transport Commission, who replied with thanks on behalf of the Commission, and to Mr. John Elliot, Chairman of the Railway Executive, who stated in a telegram to the Minister the gratitude of British Railways and the necessity for a full inquiry.

Lord Hurcomb also sent a message of sympathy to Viscount Brookeborough, Prime Minister of Northern Ireland, assuring him of the great grief with which the Commission and he had heard of the disaster which had so tragically affected Northern Ireland.

Flooding in Eastern Counties

Many Eastern Region lines were flooded or breached as the result of high tides breaching sea walls from the coast of Lincolnshire southward to the Thames estuary. Amongst those affected were the Mablethorpe-Willoughby, Downham-

Kings Lynn-Hunstanton, Fakenham-Wells, Beccles-Yarmouth South Town, and Beccles-Lowestoft Central sections; also the Brightlingsea and Clacton branches. Services, with single-line working over some double-track lines, in some cases, had been restored by Wednesday, when, however, it was thought that repairs might take some time on the Brightlingsea branch and other sections.

Electric Trains at Fenchurch Street

Flooding of the Tilbury Section main line between Benfleet and Leigh-on-Sea resulted in arrangement of an emergency service of electric trains for Southend passengers between Fenchurch Street and Shenfield, where connections were arranged into a special steam service over the Shenfield-Southend branch of the former G.E.R. This meant working electric trains between Fenchurch Street and Bow Junction over tracks equipped, but not normally used, for electric traction.

Earlier in the week, flooding of Deptford Power Station resulted in a restricted electric suburban service in the Eastern Section of the Southern Region. By Tuesday, the only electric services affected were stated to be those over lines actually flooded, as at Belvedere, near the Thames marshes.

Kent Coast Trains Diverted

Main-line services between London and Thanet resorts were diverted beyond Faversham via Canterbury East and Deal, because of flooding of the Faversham-Whitstable-Birchington section. Other Southern Region lines affected by the floods were the Allhallows branch beyond Sharnal Street and the Sheerness branch in the Isle of Sheppey.

Continental Services

Serious delays to railway and connected shipping services in the North Sea and elsewhere were caused by the gale at the weekend, and some services were suspended for a day or two.

Delays of longer duration were caused to British Railways Continental services by flooding of British and Continental ports and railways connecting therewith.

Thus at the time of going to press, the Eastern Region Manningtree-Harwich branch was closed to traffic east of Wrabness. The Harwich-Hook of Holland night steamer service was then working normally, but passengers by the "Hook Continental" and other boat trains were being conveyed between Wrabness and Parkeston Quay by road. Some connecting train services in Holland were suspended or much restricted in the Rotterdam district and in and out of the Hook of Holland, as the result of the floods.

Earlier this week, the "Night Ferry," with through sleeping cars between London and Paris via Dover and Dunkirk, was suspended because of conditions in and around Dunkirk. The Dover-Ostend packet service also had been affected by floods on the coast of Flanders.

G.N.R.(I.) 1952 RESULTS.—The Board of the Great Northern Railway Company (Ireland) regrets that the results for 1952 do not allow of the payment of any dividends on the guaranteed, preference or ordinary stocks.

British Railways and the Coal Industry

Co-operation between Railway Executive and National Coal Board

A paper on "British Railways and the Coal Industry" was read to the Railway Students Association in London on January 28 by Mr. W. L. Kelly, Assistant Director of Marketing (Transport), National Coal Board. Mr. Kelly quoted figures to show that British Railways carried three-quarters of the total output of saleable coal, while coal class traffic provided 60 per cent. of the railways' revenue-producing freight tonnage. Almost 3,300,000 tons a week were carried in some 325,000 wagons. On a full working day, more than 60,000 wagons were loaded and cleared from collieries and opencast dispersal points.

The Coal Board had watched with interest the development of the present railway organisation, and it was fitting to pay tribute to the railway officers at the Railway Executive from whom they had received such valuable co-operation. The board found it advantageous to have at hand a national railway headquarters which could speak for the railways as a whole, and where they had found a ready understanding of the coal industry's special problems.

Mr. Kelly quoted statistics to reinforce other information that has been published lately showing progress in the railway operating field between 1947 and 1951. He pointed out that while in 1947, with a total mineral wagon stock of 685,000, the total tonnage of coal traffic moved was 146.6 million, in 1951 with a total stock of 582,000 mineral wagons, the total moved was 169.3 million. A great improvement had been made by co-ordination of the wagon repairing resources of the railways, the wagon industry, and the National Coal Board. The 1948 figure of over 13 per cent of the total wagon fleet being out of service for repair was reduced within a year to 9.5 per cent, and had since come down to below 7 per cent.

It was understood that full supplies of steel were to be restored to the railways in the current year and the National Coal Board had been encouraged to see contracts placed for the building of large numbers of 16-ton wagons over the next five years. The Board had been actively associated with the railways in preparing for the gradual introduction of a 24½ ton mineral wagon and in the experiments in running coal trains composed of vacuum-braked wagons.

Shortage of wagons had made maximum use of the existing stock of the greatest importance, and Mr. Kelly referred to the benefits derived in this connection from the absorption of the former inter-company freight rolling stock control into the Railway Executive headquarters, from which distribution of empty wagons to the various coalfields could be regulated by precise and definite instructions. Close association with the railways showed that their achievement in the operating field had been essentially one of team work between the Railway Executive and the Regions. The Board had grateful recollections of crises overcome by Regions on their own initiative, such as the performance of the Newcastle District, North Eastern Region, in working coal to alternative shipping points on the Tyne during the dock strike at Blyth almost a year ago.

Mr. Kelly said in conclusion that the National Coal Board looked forward with

no little anxiety to the scheme of re-organisation which under the terms of the Transport Bill might be submitted by the

Transport Commission to the Ministry. It was not for them to intervene in matters of internal railway organisation, but they felt that the present degree of co-operation should be preserved and that the Board would need the means of consulting closely with the railways on their future plans for the growing development of coal output and its disposal.

Future of Tourism in Britain

Invisible imports as dollar earners

Sir Alexander Maxwell, Chairman of the British Travel & Holidays Association, stated in his address at a meeting of the Council of the Association on January 29, that some 800,000 overseas tourists, including a record number from the U.S.A. and Canada, were expected to visit Britain in Coronation year.

The year 1952, he said, was very successful for tourism in Britain. Nearly 720,000 overseas visitors were estimated to have come to this country, 3 per cent more than in the Festival of Britain year, 1951. A most successful feature of last year's tourist traffic was the 30 per cent rise in the number of American visitors. The total tourist earnings rose from £103 million in 1951 to £115 million in 1952; of this total, North American visitors accounted for over £40 million in dollar currency.

While the American traffic to Europe in 1952 attained the high figure of 340,000 visitors, the number of Americans who crossed the Atlantic to Europe was actually less than in 1929, the best pre-war year. The British proportion of this traffic increased from 41 per cent in 1929 to 61 per cent in 1952. Today America was richer and even more addicted to foreign travel than in the past. Sir Alexander Maxwell pointed out that they were just beginning to see the result of the introduction of tourist class air fares.

The contribution of the tourist industry to the foreign currency resources of Britain should reach the record figure of £125 million in 1953, and even now they were planning for 1954. Against this, there was the depressing feature of the drop in the number of visitors from the Continent in 1952.

Nevertheless they could claim, he went on, to have made Britain a tourist country within the short space of five years. During that period, year by year, they had increased tourist earnings including fare payments to British carriers from £33 to £115 million; that was higher than the earnings from tourism in Switzerland and as much as in France.

British Railways had introduced special facilities for tourists. He much regretted that they had been unable to introduce an "out-of-peak" reduced rate ticket. The 5s. departure tax at airports lost far more in goodwill than the amount it collected.

They had sent frequent reminders to the Railway Hotels Executive about a suggestion made that specific menus be supplied for restaurant cars, instead of the present system whereby a traveller was faced with a sort of "lucky dip," being informed of what he would be given to eat by the waiter in a confidential whisper. He was glad to learn that this suggestion was now being adopted.

The Association campaign for transfer of the bank holiday date from the first to the last Monday in August had failed, and the peak holiday problem was actually deteriorating.

One of the greatest deterrents to de-

veloping travel to this country from the Continent particularly, lay in the difficulty of obtaining a passport which in many Continental countries was not as cheap a document as in Britain. The time had come to return to the prewar practice of allowing visitors to make a short, or perhaps even a day trip between Britain and the Continent without passports. Another simple solution to the problem would be a "collective passport" for parties of ordinary tourists.

The Association was by no means happy, Sir Alexander Maxwell added, about the continuation of the £25 foreign travel allowance, which would lead probably to other countries cutting their own tourist allowances.

Much more remained to be done about brightening up the places where visitors first landed in this country.

Sailing Tickets for Ireland

British Railways announced on January 29 that passengers travelling to and from Ireland on certain dates during June, July and August will need steamer reservation tickets (issued free of charge). Sailings affected will be:—

To Ireland: Holyhead-Dun Laoghaire, June 20, 27; July 4, 11, 18 and 23 to 31 inclusive; August 1, 2, 3, 7, 8, 9, 10, 15, 22, 29; and September 5.

Heysham-Belfast: July 17, 18, 22, 23, 24, 25, 26, 27, 31; August 1, 7, 8, 15.

Stranraer-Larne: July 17, 18.

From Ireland: Dun Laoghaire-Holyhead, July 24, 25, 31; August 1, 6, 7, 8, 9, 10, 14, 15, 20, 21, 22, 28, 29.

Belfast-Heysham: July 10, 11, 13, 17, 24, 30, 31; August 7, 8, 9, 14, 21, 28; September 4.

Larne-Stranraer: July 31; August 1, 15.

Sailing tickets will be required by passengers travelling to and from Ireland by the following routes on the dates shown:—

To Ireland: Fishguard-Rosslare, nights of July 3, 10, 17, and each sailing night to August 1 (inclusive), also nights of August 7, 14, 21.

Fishguard-Waterford: nights of July 3, 10, 17, and each sailing night to July 31 (inclusive), also nights of August 7, 14, 21.

From Ireland: Rosslare-Fishguard, July 31; August 1, 6, 7, 8, 10, 14, 15, 21, 22, 28, 29.

Waterford-Fishguard, August 8, 15, 22, 29.

Details of the services and the addresses to which the applications should be made for steamer reservation and sailing tickets can be obtained at stations and agencies. The tickets are issued free of charge and may be applied for now.

Sailing tickets will also be required by passengers travelling to and from Ireland by the following routes on certain dates: Belfast Steamship Company, British & Irish Steam Packet Company, Burns & Laird Lines, City of Cork Steam Packet Company.

Parliamentary Notes

Committee Stage of Iron & Steel Bill

The House of Commons on January 28 began consideration in Committee of the Iron & Steel Bill. An agreed timetable gives 8½ days for this stage of the Bill, avoiding the guillotine procedure.

On Clause 1 (Repeal of Iron & Steel Act, 1949, and dissolution and transfer of assets and so on of the Iron & Steel Corporation) Mr. G. R. Strauss (Lambeth Vauxhall—Lab.) moved an amendment to provide that the appointed day be not less than twelve months from the Bill becoming law. He said that before the appointed day the Board and the Agency would have to be appointed and preparations made for them to assume their responsibilities. They should wait and see what the political climate was in twelve months' time.

Mr. Duncan Sandys (Minister of Supply) said such delay would cause uncertainty. The Government could not accept the amendment. Later, he said that the appointed day would be within some weeks of the passage of the Bill.

The amendment was negatived.

Consumer Representation

Mr. Frederick Lee (Newton—Lab.) moved the first of four amendments designed to save the Iron & Steel Consumers' Council. The Government, he stated, meant to put consumers on the new Board itself; and the small numbers which could be accommodated on the Board could not hope to represent all the main industrial consumers, among whom the unions would not be adequately represented.

Mr. Duncan Sandys, explaining Government plans to protect consumer interests, said they had two alternative courses: to set up a Consumers' Council and to put consumers on the Board. The second course provided better safeguards for consumers. The Bill would compel the Board to consult organisations representing consumer interests.

The amendment was rejected.

Clause 1, as amended, was ordered to stand part of the Bill, by 253 votes to 232.

Iron & Steel Board

On Clause 2 (Iron & Steel Board), Mr. George Darling (Sheffield Hillsborough—Lab.) moved an amendment to extend from one month to six months the period allowed for the transfer of duties to the new Board. He said that something like 2,400 firms would be involved.

Mr. A. R. W. Low (Parliamentary Secretary to the Ministry of Supply) said there was no bargain or anything else to do with the British Iron & Steel Federation in the matter of the composition of the Board. He thought it was made clear on the Second Reading that there was no question of the B.I.S.F. being in control of the Board.

Mr. George Strauss said that the Opposition accepted that there had been no formal bargain with the B.I.S.F., but the Minister could not expect the Opposition to believe there had been no informal discussions with leading industrialists about the future they would like for the industry.

The amendment was negatived.

An amendment by Mr. Peter Roberts (Sheffield Heeley—Nat. Lib.-Con.) to increase the minimum number of members of the Board from seven to nine, and the maximum number from 11 to 14, was agreed to.

Mr. Jack Jones (Rotherham—Lab.) moved an amendment to ensure that the Chairman and full-time members should

not have a substantial financial interest in the industry, and that no part-time member should have any financial or other interest that would prejudice exercise of his functions.

Sir Reginald Manningham-Buller (Solicitor-General) said the Government thought it essential there should be a full disclosure by all members of their interests before appointment. There must also be a full disclosure by all members after their appointment of any interest acquired by legacy or in any other way. If Mr. Jones agreed with what he said the amendment would have to be redrafted.

The amendment was, by leave, withdrawn.

On the motion that Clause 2, as amended, stand part of the Bill, Mr. Sandys said the Government wished the Board to include a number of elements. The full-time Chairman should be entirely unconnected with the steel industry, severing any connection on appointment. A nucleus of full-time members should include men from both sides of the industry; a consumer; and, possibly, also an independent member. The third element should be part-time members, some drawn from within industry, and, from consumer as well as the steel industry. They wanted also, independent members with experience of administration, business, science and so forth. The steel producers on the Board should not number more than about three, and there should be equal representation of the unions.

Clause 2, as amended, was ordered to stand part of the Bill, by 265 votes to 240.

Inclusion of Foundries

On the Third Schedule (Iron and steel activities), when discussion was resumed on January 29, Mr. A. R. W. Low moved an amendment to clarify the technical definitions of those sections of the industry to come under public supervision.

Sir Herbert Williams (Croydon E.—C.) stated that he had never heard any adequate explanation for bringing iron founding into the Bill, over which there was widespread dissatisfaction in the engineering industry.

The amendment was agreed to.

During further discussion on foundries, Mr. Sandys said that if the text of the Bill, the White Paper, and perhaps an explanatory memorandum had gone out earlier, some anxieties might not have been so acute.

In including the Conservative Party simply was implementing its election manifesto which promised revival of the former Iron & Steel Board, which had included foundries. The chief reason for bringing in foundries was that they consumed the same raw material as the steel-makers.

The Schedule, as amended, was agreed to.

Supervision by Board

On Clause 3 (Supervision of iron and steel industry by the Board), Mr. G. R. Strauss moved the first of two amendments to ensure that the Board would have power to exercise control as well as general supervision over the industry.

In the course of debate, Mr. Sandys said it would be contrary to the Government spirit and purpose to set up a body to govern and command the industry. Their policy was to restore free enterprise; and their intention was to give to the new Board a very wide mandate to watch over the industry and interests of the consumers. The main strength of the Board would lie in its moral influence.

The amendment was rejected.

Steel Prices

Mr. Julian Snow (Lichfield & Tamworth—Lab.) moved an amendment to ensure that the Board kept under review the prices charged for steel both in the U.K. and in the export markets.

Mr. Duncan Sandys said he agreed that a Board with a responsibility for watching over the iron and steel industry could not ignore the export trade. It did not seem likely that any direct arrangements would be made between, say, the French, or the German, or the Belgian steel industry and the steel industry of this country, except through the High Authority at Luxembourg to which Britain had sent a delegation. Besides this there was an inter-departmental committee which provided the collective advice to the delegation at Luxembourg.

The Government had not yet worked out exactly how the new Board would be associated with the delegation. The price control powers of the Board were to protect British consumers against excessive prices resulting from either restrictive practices or other causes in this country. The foreign consumer who imported steel from abroad had the benefit of world competition and paid the price regulated by supply and demand.

The amendment was agreed to.

Development Plans

Mr. James Griffiths (Llanelli—Lab.) moved an amendment to give the Board power to call on producers to submit annually a report of their plans, and for the Board to submit to the Minister and publish its development plans for the industry.

The amendment was defeated.

After further debate, Clause 3, as amended, was ordered to stand part of the Bill.

Further consideration of the Bill was adjourned.

Transport Bill Report Stage

The House of Commons three-day debate in the Report Stage of the Transport Bill was due to begin on February 4, with continuation yesterday (Thursday).

Contracts & Tenders

The Crown Agents for the Colonies have placed contracts with Hurst Nelson & Co. Ltd., for 72 bogie oil tank wagons for the Kenya-Uganda Section and five for the Tanganyika Section of East African Railways & Harbours.

In addition, the Crown Agents have placed a contract with Charles Roberts & Co. Ltd. for 72 bogie oil tank wagons for the Kenya-Uganda Section of E.A.R. & H.

The Egyptian State Railways have placed an order for 30 third class bogie coaches with N.I.K. Hungarian Heavy Industries. It is understood that the placing of the order was influenced by the recipients quoting a firm price and their willingness to accept payment in Egyptian currency.

The Egyptian State Railways also have placed an order for 200 four-wheel box wagons with the Metropolitan-Cammell Carriage & Wagon Co. Ltd.

Among recent orders for railway workshop machine tools received by Craven Brothers (Manchester) Limited, are: Two axle journal re-turning and burnishing lathes, and a locomotive crankpin quarter-

ing machine for the New South Wales Government Railways; a locomotive wheel centre turning lathe for the Western Region, British Railways; a locomotive axle keyway milling machine for the London Midland Region, British Railways; and an axle journal re-turning and grinding machine for the Southern Railway, India.

The Birmingham Railway Carriage & Wagon Co. Ltd. has received an order from Coras Iompair Eireann for the mechanical parts of twelve diesel main-line locomotives.

Leyland Holland N.V. has received an order from the Netherlands State Railways for eight under-floor-engine Royal Tiger coaches with a 17 ft. 6 in. wheelbase, to be used on international coach tours to Austria and Mediterranean countries. The chassis will be shipped by Leyland Motors Limited in a completely knocked-down condition for erection in the Netherlands by the new company.

The Board of Trade, Commercial Relations & Exports Department, reports that the First Secretary (Commercial) of the British Embassy at Bangkok has notified the Department of a call for tenders by the State Railways of Thailand for the supply of:—

60 Mikado type steam locomotives and 15 Pacific type steam locomotives.

Tenders should reach the Stores Superintendent, Office of the Stores Superintendent, State Railways of Thailand, Bangkok, by 2 p.m. on Thursday, May 7.

A copy of the tender documents is available for inspection at the Board of Trade by representatives of interested United Kingdom manufacturers. A further copy is available on loan in order of written application. Reference CRE/3732/53 should be quoted.

United Kingdom manufacturers who intend to quote against this contract are asked to notify the Commercial Relations & Exports Departments so that the information may be passed to the First Secretary (Commercial) at Bangkok.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, has been notified by the First Secretary (Commercial) of the British Embassy at Bangkok of a call for tenders issued by the State Railways of Thailand for the supply of:—

2 sets fixed crossing 1:0 and 5 sets double slips 1:10 for metre-gauge track.

Tenders should reach the Stores Superintendent, Office of the Stores Superintendent, State Railways of Thailand, Bangkok, by 2 p.m. on Monday, February 23.

A copy of the tender documents is available for inspection at the Board of Trade by representatives of interested United Kingdom manufacturers. A further copy is available on loan in order of written application. Reference CRE/3734/53 should be quoted.

The Board of Trade, Commercial Relations & Exports Department has been notified by the First Secretary (Commercial) of the British Embassy at Bangkok of a call for tenders issued by the State Railways of Thailand for the supply of:—

75 sets l.h. and 75 sets r.h. simple turnouts
1:10 to specification.
30 sets l.h. and 20 sets r.h. simple turnouts
1:8 to specification.

Tenders should reach the Stores Superintendent, Office of the Stores Superintendent, State Railways of Thailand, Bangkok, by 2 p.m. on May 8.

A copy of the tender documents is available for inspection at the Board of Trade by representatives of interested United Kingdom manufacturers. A further copy is available on loan in order of written application. Reference CRE/3901/53 should be quoted.

The Board of Trade, Commercial Relations & Exports Department, has been notified by H.M. Consul General at Tetuan of a call for tenders issued by the Public Works & Communications Section, Spanish High Commission, for the supply of:—

2 metre-gauge railcars with a seating capacity of 50-100.

The following information must be stated:—Make, type, year built, power of engine (b.h.p. at a given number of revs.), cylinder bore, piston stroke, seating capacity, type of brakes, transmission system, electrical system, suspension system, overall length between buffers, length of body, length of wheelbase, reversibility and non-reversibility (stating the number of driving cabs), table of speeds in both direction, total weight (empty), maximum load per axle. All cars offered with a larger wheelbase than 16 metres must be reversible with a driver's cab at each end.

Tenders must reach the Servicio de Contabilidad de la Delegacion de Obras Publicas y Comunicaciones, Tetuan, by 12 noon on Tuesday, March 10.

A copy of the tender documents (in Spanish) is available for inspection at the Board of Trade by representatives of interested United Kingdom manufacturers until February 7, after which date it will be available on loan in order of written application. Reference CRE/2635/53 should be quoted.

United Kingdom manufacturers tendering for this contract should indicate the local facilities they are able to offer to cover supply of replacement parts and maintenance.

Notes and News

Transportation Club Dinner.—Mr. W. H. De Monchy, a director of Shell Petroleum Co. Ltd., and of the Holland-America Line, will be the principal guest at the February dinner of the Transportation Club which will be held on Tuesday next, February 10, at 44, Wilton Crescent, London, S.W.1, at 7 p.m. for 7.30 p.m.

Assistant Traffic Manager Required.—Applications are invited for the post of assistant traffic manager, under 45 years of age, required by industrial firm in the Midlands. Railway experience of rates and charges, and wagon control, essential. See Official Notices on page 167.

Heaviest Transformer on Level Crossing.—Special measures were taken to strengthen the level crossing at Staythorpe, Notts., to permit the passage of a road trailer conveying the largest and heaviest single piece of electrical apparatus ever moved by road or rail in Great Britain. This was a 275-kV. transformer en route from the Rugby Works of the British Thomson-Houston Co. Ltd., to the B.E.A. Staythorpe power station. The journey took place between January 29 and February 1, and had to be scheduled so as to pass over the level crossing between 10.30 a.m. and 12.30 p.m. on

the latter date as these were the only times when the crossing could be made available by British Railways. The journey was completed according to schedule. The transformer, weighing 140 tons when stripped for transport is the first of six for the B.E.A. super-tension grid.

Air-conditioned Rolling Stock for Egypt.—The "Insulight" double-glazing units fitted to the Egyptian Railway rolling stock, reference to which was made in our January 2 issue, is hermetically sealed, and not sealed with a non-hardening compound as stated.

The Institution of Locomotive Engineers: Annual Luncheon.—A reception, and luncheon of the Institution of Locomotive Engineers, will be held on Friday, March 6, at the Dorchester Hotel, Park Lane, London, W.1, at 12 noon. The President, Mr. C. M. Cock, will preside at the luncheon, which will follow at 1 p.m.

British Wood Preserving Association.—By courtesy of the Council of the Royal Institution of British Architects, a Brains Trust on timber preservation will be held at 7 p.m. on March 4, in the Henry Jarvis Hall, R.I.B.A., 66, Portland Place, London, W.1. The chair will be taken by Major A. G. Saunders, President of the British Wood Preserving Association, and the questionmaster will be Mr. W. E. Bruce, secretary of the association.

Railway Students' Association.—The next meeting of the Railway Students' Association will be held on February 25 at the London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2, at 6.15 p.m., when an illustrated lecture will be delivered by Mr. W. Purdom, General Agent for Great Britain of the Interfrigo Company, on "International Transport of Refrigerated Goods by Rail." The chair will be taken by Mr. C. P. Hopkins, President of the Association.

British Railways to Experiment with American Track Sweeper.—British Railways are to carry out trials with an American mobile track sweeper which, it is expected, will effect considerable labour economy in sweeping up cinders, stones and other materials dropped in railway sidings. The machine can be driven and operated by one man and is powered by a 100-h.p. petrol engine. It is mounted on six rubber-tyre wheels which enable it to travel astride, alongside, or across the railway track. The material can be swept into a scoop at the rate of 5 cu. yd. a minute by means of a series of blades working in an endless chain, and then loaded into wagons through a system of conveyor belts. It is also hoped that the new machine will prove useful in clearing snow from the railway track. The machine is expected to be ready for use in this country next summer.

Mid-Week Reduced Fares to Channel Islands.—To encourage mid-week travel to and from the Channel Islands and to ease weekend pressure on the steamer accommodation, British Railways are to issue reduced rate midweek 15-day return tickets on Tuesdays, Wednesdays, and Thursdays from the beginning of April to the end of October. The return fares from Waterloo or Paddington to Guernsey or Jersey will be £6 6s. 6d. first and £4 5s. 8d. third class throughout. At the same time fares for tickets available on other days of the week and for journeys from April 1 will be revised: single fares London to

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is exempted from the provisions of the Notification of Vacancies Order, 1952.

ASSISTANT TRAFFIC MANAGER required by a large industrial firm in the Midlands. Railway experience of rates and charges, wagon control, etc., essential. Knowledge also required of shipping and road transport. Superannuation scheme in operation. Applicants should be under 45 years of age. Applications stating age, details of previous experience, and salary required to:—Box 727, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

WANTED—1,000 tons relayable B.H. rails 95 lbs. B.S.S. Offers to:—EAGRE CONSTRUCTION CO., LTD., East Common Lane, Scunthorpe.

RAILWAY MAINTENANCE PROBLEMS. By H. A. Hull (late District Engineer, L.M.S.R.). Valuable information. With much sound advice upon the upkeep of permanent way. Cloth. 8½ in. by 5½ in. 82 pp. Diagrams. 5s. By post 5s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

N.E.R. HISTORY.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

Guernsey or Jersey will be £4 9s. first and £2 17s. 7d. third class throughout and return fares £7 12s. 8d. and £5 1s. respectively. British Railways point out that these new fares compare favourably with those of alternative routes to and from the Channel Islands.

Railway Students' Association: Visit to South Lambeth Goods Depot.—On Saturday morning, February 21, a visit has been arranged to South Lambeth Goods Depot, Western Region, one of the most modern stations in London. The tour will commence about 9.30 a.m. and will include an inspection of the methods of operation and appliances in use in the shed, yard and warehouse.

British Railways Record Coal Carrying.—Last week British Railways cleared 3,350,850 tons of coal from deep-mined pits and opencast sites—the highest figure since May, 1951. During the 48 hr. ended 6 a.m. on February 2, 409,420 tons were cleared. The tonnage of iron and steel conveyed from the principal steelworks during the week ended January 24 was 224,398 and 312,500 tons of iron ore were carried.

British Road Services Help in Flood Disaster.—Among much prompt action taken to mitigate the effects of the East Coast floods and to forestall further disaster was that of the Midland Division of British Road Services last Sunday. At 10 p.m., at the request of the Leicester Police, emergency arrangements were put into operation for transport of one million sandbags from a military depot near Leicester to the East Coast to strengthen sea defences. The whole operation was completed by 28 lorries by noon on Tuesday.

Bridge Across the Tagus.—On February 3, Dorman, Long & Co. Ltd., exhibited a film entitled "Bridge Across the Tagus" at the Hammer Theatre, 113, Wardour Street, London, W.1. The film, which is in technicolour, was introduced by Mr. J. H. Pain, Manager, Bridge Department, and Special Director of the company. The film depicts the building of the superstructure of the Vila Franca five-span road bridge, the con-

THE PORT OF LONDON AUTHORITY invite applications for appointments as Assistant Engineer—scale of pay (inclusive of Pay Supplement) £970 by annual increments to £1,331 5s. per annum. Preference will be given to candidates not over 40 years of age who must be British subjects and Corporate Members of either the Institution of Civil Engineers or the Institution of Mechanical Engineers with experience in civil engineering construction and maintenance in a Dock or Harbour Undertaking or in the erection and maintenance of machinery and plant used in Dock and Railway Undertakings. Successful applicants will be required to become members of the Port of London Authority's contributory superannuation scheme. In certain cases existing pensionable service is transferable. Application forms may be obtained from the ESTABLISHMENT OFFICER, PORT OF LONDON AUTHORITY, Trinity Square, E.C.3.—F. W. NUNNELEY, Secretary.

REQUIRED by the Central Railway of Peru two Locomotive Assistants preferably single and between 26/30. Qualifications: Full apprenticeship with British Railways or Locomotive Builders and experience in one or more of the following: Railway Machine Tool Operation, Welding, Boiler work, Locomotive Running or Drawing Office. Apply: SECRETARY, PERUVIAN CORPORATION LTD., 144, Leadenhall Street, London, E.C.3.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 2s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

LOCOMOTIVE ENGINEER required by The Steel Company of Wales Limited, Port Talbot, to take charge of maintenance of an expanding fleet of 15 Diesel-Electric Locomotives. Applicants should have a thorough knowledge of Diesel-Electric traction, from the standpoint of both major overhauls, running maintenance and servicing and preferably possess a degree or equivalent qualifications in Mechanical or Electrical engineering. A good knowledge of steam locomotives would be a considerable advantage, though not essential. Applications in own handwriting, giving age, qualifications, experience, etc., should be addressed to:—THE PERSONNEL SUPERINTENDENT, P.O. Box No. 3, Port Talbot, Glam.

TRANSPORT ADMINISTRATION IN TROPICAL DEPENDENCIES. By George V. O. Bulkeley, C.B.E., M.I.Mech.E. With chapters on Finance, Accounting and Statistical Methods. In collaboration with Ernest J. Smith, F.C.I.S., formerly Chief Accountant, Nigerian Government Railway. 190 pages Medium 8vo. Full cloth. Price 20s. By post 20s. 6d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE "PAGET" LOCOMOTIVE. Hitherto unpublished details of Sir Cecil Paget's heroic experiments. Eight single-acting cylinders with rotary valves. An application of the principles of the Williams central-valve engine to the steam locomotive. By James Clayton, M.B.E., M.I.Mech.E. Reprinted from *The Railway Gazette*, November 2, 1945. Price 2s. Post free 2s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

Moors. These trains have been arranged in co-operation with the Ramblers' Association, who will provide guides for the various walks and climbs. Support has been promised from numerous youth organisations.

New Hoffmann Address in Cardiff.—The Hoffmann Manufacturing Co. Ltd. has moved its office and stockroom from 4, Salisbury Square, Salisbury Road, Cardiff, to more spacious premises at 121, Cathedral Road, Cardiff. The telephone, No., 30133, and the telegraphic address, "Hoffmann Cardiff," remain unchanged.

Special Trains for Rugby International.—Thirty additional trains will be run tomorrow, February 7, by the Scottish Region to carry spectators of the Rugby International with Wales at Murrayfield. This number includes two special dining car trains from Glasgow Central direct to Murrayfield Station on which passengers will have lunch on the outward journey and high tea on the return journey. Other trains from Glasgow Queen Street will run to Haymarket and Waverley Stations. Six trains serve the Border towns, and there will be four to Edinburgh from Montrose, Dundee, and Fife.

B.R. New Ships for Clyde and Loch Lomond.—The Scottish Region has announced the names for the new ships in course of construction for the Clyde and Loch Lomond services. They are:—

Clyde Passenger Motor Vessels: *Maid of Ashton*, *Maid of Argyll*, *Maid of Skelmorlie*, *Maid of Cambrae*.

Clyde General-Purpose Motor Vessels: *Arran*, *Cowal*, *Bute*.

Loch Lomond Passenger Steamer: *Maid of the Loch*.

The first of the new ships, *Maid of Ashton*, will be launched at Yarrow & Company's yard, Scotstoun, on February 17.

Special Train for Exports to Yugoslavia.—On January 29 a special train conveying 230 tons of ammonium nitrate from Billingham, County Durham, arrived at Poplar Dock Station, Eastern Region, for shipment to Yugoslavia. The train consisted

of 30 wagons loaded with drums of ammonium nitrate, each drum weighing between 6 and 7 cwt. This traffic is passing on behalf of the Yugoslav Government and is to be barged to Millwall Docks for loading into the s.s. *Rijeka*.

Butler Machine Tool Co. Ltd.: Burden of Taxation.—The statement circulated with the report of the Butler Machine Tool Co. Ltd. by the Chairman, Mr. James W. Butler, who presided at the annual general meeting on January 23, stresses the benefits of works improvements. The company, he said, had completed the re-design and production requirements for most of its products. Unfortunately a disproportionate part of profits was taken by taxation which hit them with particular severity because the standard years for E.P.L. were those in which their production and profits were adversely affected by dislocation caused by modernisation of works and products. Out of a trading profit of £84,000, modest compared with the £550,000 of capital employed in the business, £60,500 was taken in taxation, compared with £17,062 distributed to shareholders.

Stream-Line Filters Limited.—Presiding at the annual general meeting on January 24 of Stream-Line Filters Limited, the Chairman, Mr. C. S. Garland, said in his speech that the dividend for the year to December 31, 1951, had been restored to the pre-war level of 20 per cent from which it was reduced in 1940 solely on account of taxation, which remained the heaviest charge on the business; and E.P.L. would bear with particular severity as during the years 1947-1949 the company and its subsidiaries were applying all their efforts to a costly re-establishment of their world-wide export trade. Despite cancellation and deferment of export orders, the results for 1952 seemed satisfactory. Order books would keep all factories fully employed for more than a year ahead. Both turnover and profits attained new records in 1951.

February 9 (Mon.).—The Institute of Transport in the Jarvis Hall, 66, Portland Place, W.1, at 5.45 p.m. Brancker Memorial Lecture: "The Influence of Military Aviation on Civil Air Transport," by Sir Frederick Handley Page, past President.

February 9 (Mon.).—Locomotive & Carriage Institution of Great Britain & Eire, Doncaster Centre, at 6.30 p.m., at the Doncaster Plant Works Library, British Railways, Eastern Region; Paper on "Locomotive Valve Gears," by Mr. E. Windle.

February 9 (Mon.).—Institution of Electrical Engineers, at Savoy Place, London, W.C.2, at 5.30 p.m.; Discussion on "Is Technical Advertising Necessary or Desirable?" opened by Mr. W. Bamford.

February 9 (Mon.).—Railway Service Christian Union Meeting, in the Clerical Dining Hall, London Midland Region, Cardington Street, Euston, N.W.1, at 6.15 p.m. Speaker, Mr. D. W. M. Fox.

February 12 (Thu.).—Irish Railway Record Society, at the C.I.E. Club, Earl Place, Dublin, at 7.30 p.m. Paper by Dr. Hadden on "The Railways in the Wexford Area During the Civil War," Part II.

February 12 (Thu.).—Institute of Transport, Bristol Graduate and Student

Society, at the Docks Office, Bristol, at 6 p.m. Paper on "Traffic Control and some Operating Problems of British Railways," by Mr. S. E. Parkhouse.

February 13 (Fri.).—Institute of Transport, North Staffordshire Group, at the North Stafford Hotel, Stoke-on-Trent, at 6.30 p.m. Paper on "Denationalisation," by Mr. Ralph Cropper.

February 13 (Fri.).—Institute of Transport, Northern Section, at the Royal Station Hotel, Newcastle-upon-Tyne, at 7 p.m. Paper on "Trends and influences in transport charges," by Mr. J. R. Pike.

February 14 (Sat.).—Permanent Way Institution, East Anglia Section, at Cambridge, at 2.15 p.m. Paper on "Use and Maintenance of Permanent Way Tools," by Mr. J. H. King.

February 18 (Wed.).—British Railways Southern Region Lecture & Debating Society, in the Chapter House, St. Thomas' Street, S.E.1, at 5.45 p.m. for 6 p.m. Members' Night. Papers on "Management and Staff," by Mr. E. J. Pond; "Two Interesting South Wales Inclines," by Mr. John Dray-

ton; "Through Wagon, Manchester to Milan," by Mr. C. E. Wild.

February 18 (Wed.).—Institution of Locomotive Engineers at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, at 5.30 p.m. Paper on "Operating Experiences with two Gas Turbine Locomotives," by Mr. A. W. J. Dymond.

February 18 (Wed.).—Institution of Railway Signal Engineers at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2, at 6 p.m. Paper on "Power Signalling Equipment, Design and Performance Related to Installation and Maintenance," by Mr. L. J. M. Knotts.

February 19 (Thu.).—Locomotive & Carriage Institution of Great Britain & Eire; in the Board Room, Railway Clearing House, 163, Eversholt Street, London, N.W.1, at 7 p.m. Paper on "Background to Summer Passenger Timetable," by Mr. C. D. Hackett.

February 21 (Sat.).—Railway Students' Association. Visit to South Lambeth Goods Depot, Western Region, at 9.30 a.m.

Railway Stock Market

Stock markets have been quieter because sentiment reflected the flood news and an easier tendency in British Funds. The latter, it is thought, may encounter a fair amount of selling by insurance companies who may have to realise part of their investments to meet claims arising from flood damage on the East Coast. The City still remains hopeful that taxation will be reduced this year; and news of the further increase in gold and dollar reserves has had a good influence on markets after the easier trend in evidence.

Industrials again have shown many features because of a tendency to favour shares whose market prices are estimated to be considerably below their break-up figure based on the value of assets. Nevertheless this factor can be exaggerated, for unless a take-over offer to gain control of a company and its assets is in prospect, the main consideration by which an investor grades a share is its dividend record and the yield on the basis of last year's dividend.

There has been a revival of activity in Canadian securities on the Stock Exchange, and White Pass & Yukon were a prominent feature with a further rise in the no-par value shares to \$22½ and in the convertible debentures to £84. Canadian Pacifics were better at \$58 earlier in the week on the efforts to settle the labour dispute; the 4 per cent preference stock changed hands around £64 and the 4 per cent debentures around £79.

In other directions, Antofagasta stocks encountered some selling, and the ordinary eased to 9½ with the preference at 50. Manila Railway issues have remained quieter, awaiting any fresh light on the operating company's plans. The "A" debentures were 80, and the preference shares 9s.

United of Havana stocks were inclined to ease further in the absence of news from Cuba of take-over developments. The 4 per cent "A" debentures were 60, the 4 per cent "B" stock 55, with the 5 per cent second income stock 17½, but the consolidated stock at 2½ regained part on an earlier decline.

Mexican Central "A" debentures have been firm at 68. In other directions, San Paulo 6s. 8d. units eased to 7s. 3d. while Nitrate Rails shares were 20s. 6d. and Taltal shares 15s. 4½d. Brazil Railway gold bonds have been dealt in at 6½, and Paraguay Central income debentures marked 1½. Guayaquil & Quito 5 per cent bonds marked 35½.

Chilean Northern 5 per cent debentures were 26½. International of Central America common shares were quoted at \$16½ and the 5 per cent gold bonds at £148. Dorada stocks were quiet with the ordinary at 56½ and the 6 per cent debentures 92½.

Nyasaland Railways 3½ per cent first debentures have been dealt in around 72. Bansi Light Railway stock was 119.

Among road transport shares West Riding eased to 33s., Southdown were 29s. 9d. and Lancashire Transport 42s. Aldershot & District were quoted at 57s. 6d., Maidstone & District at 51s. 3d., and Potteries Motor Traction at 30s.

Vickers have moved up sharply to 46s. 10½d. at the time of going to press, and Cammell Laird 5s. shares to 11s. 6d. while Babcock & Wilcox were better at 70s. 9d. as were Guest Keen at 51s. 9d. and Murex at 57s. 3d. T. W. Ward at 74s. 3d. lost a small part of their recent advance, Ruston & Hornsby were 40s. 6d. and Ransome & Marles strengthened to 24s. 9d. Tube Investments showed steadiness at 61s. 3d.

Among shares of locomotive builders and engineers, Beyer Peacock have been firm at 34s. 3d.xd. while Hurst Nelson strengthened to 42s. 6d. and North British Locomotive were 14s. 1½d. G. D. Peters 5s. shares were quoted at 18s. 9d., Birmingham Carriage were 34s. 10½d., Vulcan Foundry 22s. 6d., Gloucester Wagon 10s. shares 12s., Central Wagon 60s., while Charles Roberts 5s. shares were 20s. 3d. and Wagon Repairs 5s. shares 12s. 9d.

The flood news put a number of shares lower, including Powell Duffryn, because of damage to the oil refinery at Coryton in which the company has an interest. Anglo-Iranian at £5½ eased because of the heavy damage to the new refinery on the Isle of Grain.